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Colpo-hysterectomy for
malignant disease ***



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COLPO-HYSTERECTOMY FOR MALIGNANT DISEASE.

SOME CONSIDERATIONS IN REGARD TO THE OPERATION,
TECHNIQUE, ETC.

WITH A REPORT OF MY FIRST FIVE CASES.¹

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THESE five operations were performed in 1887. I have purposely delayed reporting them,¹ to see what time would prove as to the results. Many women had previously consulted me for cancer of the uterus; some I tried to help; yet for none did I consider a radical operation advisable, except one patient, in December, 1883, I hoped might be saved; but further investigation proved that the disease had extended beyond the uterus and that other structures were involved. Greig Smith,² in discussing the indications for colpo-hysterectomy, gives the following rule: "The patient must be in fair health; marked anemia, cachexia, or a faulty condition of the vital organs forbids operation." By this, certainly, these patients were condemned. So, indeed, were all those whose histories are given below. All had marked anemia, all were cachectic, all had a faulty condition of the vital organs, and each of them had been out of health for a considerable period. Only the third case gave promise of ultimate recovery; the operation, for the others, was undertaken as a last resort, with almost a fear that they could not survive, but it was the only thing that gave the least prospect of saving their lives or lessening their sufferings.

CASE I.—Mrs. K. called at Fleet Place Dispensary May 30th, 1887. She was 62 years of age, married thirty-one years, and had four children, the youngest 19 years old; said she had not been well since the birth of this child. Menstruation appeared at the age of 16, was regular, stopped at 44, reappeared at 48, and for the last few months there had been a constant bloody and watery discharge. The patient was feeble, emaciated, no appetite, suffered great pain, and asked to be admitted to the hospital. Carcinoma of the uterus was diagnosed, and, as far as I could judge, the cancer

¹ The specimens were presented before the New York Pathological Society.

² "Abdominal Surgery," p. 214.

Presented by the author

had not invaded the surrounding tissues, so if the operation was performed without delay there might be hope. I determined to save the woman if possible. On the 4th of June, 1887, assisted by Dr. Charles N. D. Jones, I removed the entire uterus. First the cancerous tissue was curetted away, the parts cleansed and disinfected, and a circular incision was made around the cervix; I then separated the vaginal tissues, keeping close to the uterus, opened into the peritoneal cavity anteriorly and posteriorly, tied the broad ligaments on each side, and delivered without retroversion or anteversion. The vagino-peritoneal wound was left unclosed and the vagina packed with iodoform gauze. The patient made an excellent recovery; her temperature at no time was above $99\frac{1}{2}$ ° F. At the end of two and one-half weeks she was able to be up, had a good appetite, and gained in health and strength. November 12th, 1887, she says she is better and more comfortable than she has been for many years. Fourteen months after the operation she was enjoying comparatively good health and able to do her usual amount of work. For a while we heard from her occasionally; each time she was doing well. After this the patient disappeared from view; still, by the operation she was relieved of suffering and restored to comparative health and vigor.

CASE II.—Mrs. E. first consulted me July 22d, 1887, at the Throop Avenue Dispensary; she was 49 years of age; married eighteen years; had nine children, the youngest 11 years old; says she has been sick since the birth of this child, and now complains of pain in her back, severe shooting and darting pains through the pelvis, and the last few months has had a profuse watery and bloody discharge.

I found a deeply lacerated cervix in a state of ulceration, and from it was issuing an offensive flow streaked with blood and coming away in immense quantities. I excised a few granulations from the cervix, and sent them to Dr. C. Heitzmann for microscopical examination. He pronounced it to be a small round-celled sarcoma, and said that the patient would probably not live a year. I informed the patient and her husband, and told them that nothing would save her but entire extirpation of the uterus. They were both extremely anxious that the operation should be performed. I delayed from time to time, because I felt extreme hesitation in attacking a disease so threatening and so far advanced, lest the patient might not eventually be benefited. Finally, September 5th, 1887, she was admitted into the Hospital for Women at 501 Madison street.

From further investigation I had reason to believe that the disease had not only extended to the fundus, but had invaded the surrounding structures. I requested Drs. H. J. Boldt and A. P. Dudley, of New York, to see the patient. After careful examination they were both of the opinion that "the disease had extended beyond the uterus," but still thought it "a suitable case for operation." Subsequently I found even more serious symptoms, and, fearing the worst results, said to the husband and wife that even entire extirpation of the uterus might not cure, and that the patient had better be removed from the hospital and have nothing more done. I insisted upon this more especially on account of her emaciated and exhausted condition, which gave little hope of final recovery. Both husband and wife seemed to become more and more anxious for the operation, and urged persistently that it be performed; she especially pleaded that it might be done—"even if there was but one chance in a hundred, she wanted that chance."

If the operation would give the woman a chance of life, why should I not

make the effort? The womb was fairly movable; possibly she might be saved. On the 8th, as exploratory and preparatory for the operation, I scraped and curetted away as much as possible of the malignant growth, which seemed to have honeycombed the whole anterior part of the cervix and extended into the fundus. A considerable amount was curetted out, the cervix and vagina were disinfected and tamponed with iodoform gauze.

The patient did not stand this operation very well. She was evidently failing very rapidly and there was no time to lose. On the 13th I had the patient etherized and performed for her vaginal hysterectomy. The uterus was pulled down with volsella forceps, the extent of the bladder carefully noted, and near it an incision was made anteriorly in the mucous membrane covering the cervix, and as far as possible from the seat of the ulceration. I then separated the bladder and vaginal tissues, keeping close to the uterus to avoid any injury to the bladder. I opened into the peritoneal cavity anteriorly. Enlarging this opening, I passed the index finger of my left hand to the fundus of the uterus and out on the left broad ligament, which I secured, at the top part by ligatures and the lower portion by forceps, then separated, removing a considerable part of the broad ligament, so as to get clear of any possibly infected tissue. The fundus was next partially delivered anteriorly, the right broad ligament secured in the same manner, at the top with ligatures and the lower portion by long-bladed forceps. I also removed from each side a considerable portion of the broad ligament and as much as possible of the parametric cellular tissue. The blood vessels of the pampiniform plexus were numerous and enormously enlarged.

The uterus was now completely delivered, held only by posterior connections which were readily separated, and hemorrhage was prevented by pressure forceps. The operation was finished in an unexpectedly short period. The sponges which had been previously introduced to keep the intestines back, and which served to protect the peritoneal cavity, were now removed, and thereby the cavity was still further cleansed, and any hemorrhage guarded against by putting on more pressure forceps and then packing with iodoform gauze. No attempt was made to sew up the vaginal wound. I made the end of a strip of gauze enter a little into the peritoneal cavity to secure more perfect drainage. The seat of the operation, with the hanging forceps, was fully surrounded and protected by an abundance of absorbent cotton, and the patient placed in bed. She came out of ether feeling quite comfortable—so comfortable that she asked me during the evening if I had really removed the uterus or had performed any operation. When I assured her the operation had been performed and the uterus was removed, she was satisfied, happy, and very cheerful. The same evening she micturated and had a natural evacuation from the bowels. The dressings were changed and the patient slept comfortably the whole night. During the second day she took nourishment, had a good appetite, asked for grapes, and repeatedly expressed satisfaction that the operation had been performed. Her pulse was 108, temperature 99 $\frac{1}{2}$. The third day she ate chicken, and, when about to be removed to another bed, asked if she could not walk, said she felt all right. She gained strength rapidly, looked well, and left the hospital in a little over two weeks after the operation.

October 5th patient reported that she was doing well. November 5th, 1887, she dispensary record book says: Mrs. E. looks better and is still improving; says she "feels strong, able to do her work, and has not felt so well for ten years." She wrote April 21st, 1888: "Three weeks after leaving the hospital

I resumed my avocation of washing and ironing, and now I feel I am a new-born creature." December 13th, 1889, she wrote: "I now feel first-rate, my appetite is good, and I am growing stronger from day to day; I cannot feel too thankful that I am restored to health and brought back to my family and children."

April, 1890: Mrs. E. visited the dispensary; looks remarkably well, and supports herself and family by washing and scrubbing. July 20th, 1891: Mrs. E. attends to her daily duties as janitress of a large bank building. September 8th, 1892: Still has no return of the disease.

CASE III.—Mrs. H. came to Throop Avenue Dispensary July 22d, 1887; 49 years old; married twenty-five years; had four children, the youngest child 19 years of age; says she has been sick since the birth of this child, but has suffered more especially within the last five years, and lately has had darting and shooting pains in the pelvis, a constant burning and distress, with a bearing down and an offensive watery discharge; said she would rather die than endure the torment, and that she was not able to do her work nor to care for her husband and family.

On examination the whole cervix was found to be in a condition of ulceration, which a microscopic examination proved to be carcinomatous. Vaginal hysterectomy was performed at the Woman's Hospital, October 28th, 1887. Peculiar difficulties attended this operation on account of an intermural myoma in the posterior wall of the fundus, and an extreme retroversion. The uterus was first placed in normal position and delivered anteriorly as in the previous case. An incision was made in the anterior part of the mucous membrane of the cervix as far from the ulcerating surface as possible, the extent of the bladder noted and its attachments with the vaginal tissue carefully separated from the cervix, and the peritoneal cavity opened anteriorly, the uterus brought out, and the left broad ligament secured at the upper portion with ligatures, the lower part clamped with forceps and separated; the uterus could thus be still further delivered. And in the same manner the right broad ligament was tied and clamped.

Every day the wound was redressed, the old dressings removed and new ones put on. The patient did remarkably well. In two weeks she was able to sit up, and left the hospital on the 19th of November. On the 22d she came to my office; looked well. In December again reported herself as getting along excellently, and repeatedly expressed her thanks for what had been done for her in the hospital, as well as for the kind care and attention she had there received. June, 1892, five years after the operation, there is no return of the disease; the patient looks remarkably well and is in excellent health.

CASE IV.—Mrs. N. This case was presented with rather urgent symptoms—ulceration, bleeding, and offensive discharge—yet it was then regarded only as a deep transverse laceration of the cervix. There were more emaciation, feebleness, and nervous depression than in either of the preceding cases.

The patient was 35 years old; married ten years; had four children, the youngest being 4 years of age. She entered the hospital September, 1887. Microscopical examination showed the disease to be a round-celled sarcoma, apparently limited to the cervix. I decided to do amputation, hoping thereby to get rid of all the disease. This operation was performed September 17th, 1887, with thorough antiseptic precautions. The disease soon reappeared; it proved to be extremely malignant, progressed rapidly. The only chance of saving the patient was by the immediate and entire extirpation of the organ.

The husband was fully informed of her condition; was anxious that the operation should be performed, and as soon as possible. In the meantime everything was being done to improve the patient locally, and to build up as much as possible her general health and strength. On the first day of October, 1887, I removed the uterus. The patient was so exceedingly feeble that at times it was difficult for the physician who administered the ether to perceive that she was breathing. The cervix was brought down with a double tenaculum; the position of the bladder was carefully noted, and was found to extend quite to the point of the ulceration. I curetted the cervix, thoroughly disinfected, packed with small bits of cotton wet in 1:5000 bichloride solution, then carefully dissected away the bladder and vaginal tissues, opening the peritoneal cavity anteriorly. The mucous membrane of the vagina and the peritoneum were stitched together, so as to protect the bladder, and the loop of the thread conveniently served to hold away the edge of the wound and the peritoneum. The fundus was next seized with Volkmann's forceps and brought out anteriorly. Sponges with strings attached were passed into the peritoneal cavity to protect and keep back the intestines. The broad ligament on the left side was ligated at the top, and the lower portion secured by forceps, then separated at some little distance from the uterus, and as much as possible of the perimetral tissue was removed and the pedicle cauterized. The right broad ligament was treated in the same manner, after which the posterior attachments of the uterus were readily separated and the organ delivered. The mucous and peritoneal membranes were held together by pressure forceps, the sponges removed, the parts cleansed, and the vagina packed with iodoform gauze. The operation lasted about thirty-three minutes, though the immediate work of opening the peritoneal cavity and removing the uterus was done in less than thirteen minutes. When the operation was completed the patient seemed more comfortable than before it commenced, and she was very much better and stronger than after the preceding operation. She was placed in bed with bottles of hot water around her, and was apparently doing well, except the pulse was extremely feeble and very rapid.

The next morning the patient's pulse was still extremely feeble and very rapid, but there was no increase of temperature. I put on new dressings; patient began to grow better, passed urine normally, and had a natural evacuation of her bowels.

October 4th she was moved into another ward; October 20th was able to be out of bed; October 24th was up all day, helping to look after another patient; and October 28th was removed to the children's department of the hospital for convalescence.

It will be noted that the patient recovered more rapidly and was stronger after the hysterectomy than after the cervix operation. October 30th she came to my office complaining of pains through the bladder, visited me frequently, and, because of so much suffering in her bladder, I feared there would soon be a reappearance of the disease. Temporarily I administered tonics. In this case the disease seemed so malignant that I presumed there would be a recurrence. I could only hope the operation would prolong her life for a few months. The patient was now lost sight of. I heard nothing from her and concluded that there had been a reappearance of the disease and that she was probably not living. Still, in June, 1891, I determined to find her, if possible, or learn her subsequent history. Finally I ascertained her residence, and walked in as she and her little family were sitting down to their Sunday midday meal.

She was the picture of health, blooming and apparently ten years younger than when I had last seen her. She and her husband both expressed great gratification that she had had the operation and that her life was saved. August, 1892, nearly five years after the operation, the patient is still in good health.

CASE V.—Mrs. L. E. called at Throop Avenue Dispensary October 21st, 1887; feeble, pale, emaciated, cadaverous, and had the appearance of one in the last stages of consumption; seemed hardly able to walk. She was 34 years old; married eleven years; had five children, youngest 2 years old. She complained of pain in the back and shooting and darting pains in the lower part of the pelvis, and had a constant watery discharge streaked with blood and very offensive. She had no appetite, was sick and not able to do any kind of work or to care for her family.

Examination showed ulceration at the seat of an old and extensive laceration of the cervix. The whole surface was bathed in pus and blood. October 23d she called again at the dispensary, complaining of the same prostration and feebleness, and watery, profuse discharges. Again she asked to go to the hospital. She was admitted on the 26th of October, still very feeble. Antiseptic douches were used and the womb treated every day, yet the offensive watery discharge continued. As soon as she could gain a little strength the cervix and vagina were thoroughly cleansed by brush, soap and water, and afterward by bichloride solution. The uterus was douched internally by an antiseptic solution; it was then curetted, and an effort was made to restore the deep transverse laceration. All the diseased tissue, so far as I could judge at the time, was removed, and the cervix closed with four stitches on each side. The patient continued extremely feeble; no special rise in temperature or pulse, still for days after she looked like one nearly dead, scarcely able to lift her head from the pillow. Antiseptic douches were given every day, yet at the end of a week the whole field of operation was a mass of suppuration; every stitch had ulcerated out. Microscopical examination proved the disease to be carcinoma. It was apparently extending to the fundus, and I feared had even involved other structures. I informed the husband of the nature of the disease; that nothing would save her but entire extirpation of the uterus, and even that gave but a chance of saving her life. The husband expressed in writing his wish for the operation, and, as soon as the patient was able, arrangements were made for its performance. On the 28th of November she was again lifted from her bed, again carried in the nurse's arms to the operating table, and hysterectomy was performed with the greatest celerity. First the ulcerating tissue was curetted and the cervix packed with bits of cotton. Next the extent of the bladder was carefully noted, and an incision was made through the vaginal membrane and as far from the ulceration as possible; the bladder and vaginal tissue were separated, keeping close to the uterus, and the peritoneal cavity was opened into anteriorly, clamping the broad ligaments, and so removing the whole uterus in less than fifteen minutes.

But for this special procedure, which not only gives more expedition but causes less shock, I do not believe the patient could have survived the operation. After it was over she was extremely feeble and exhausted. She was carefully removed to the bed, well covered, and bottles of hot water were placed around her. The pulse was still very rapid. When the wound was redressed she seemed more comfortable, passed urine normally, and at once began to show more strength and better condition; had some appetite, and improved beyond all expectation. Referring to this case in the New York *Medical Journal*,

September 1st, 1888, I said : "The patient was able to be up in two and a half weeks after the operation, stronger than she had been for months ; left the hospital December 23d, and since has been able to resume the charge of her large family." February, 1888, dispensary record : "Mrs. E. looks well, is stronger, and still improving."

After this I did not see this patient or hear from her till April 28th, 1890. At this time she looked remarkably well, better than one could have supposed possible. Besides the care of her family she attended to her small grocery store. When she lay in the hospital before the operation she was like one almost dead, pale, wan, and feeble, the sickly discharge apparently draining her life away ; now her eyes were bright, the sunken, hollow cheeks were filled out, and the color came and went. My work for her in the hospital, then apparently without hope, had resulted in good, because the operation was fortunately done before the rapidly growing disease had infected the neighboring vital structures. The delay of a few months or weeks might have been fatal.

These few cases prove beyond doubt that by a timely operation malignant disease may be eradicated from the system. Certainly years were added to the life of each of these women ; to each one much suffering was saved and a sure death averted. Dr. G. F. Shrady, in his article on the "Curability of Cancer by Operation," says: "Cancer is essentially a local disease. It begins as an isolated growth in a particular tissue, and progresses by proliferating into neighboring parts, and can be cured by an operation."¹ This is a most important fact, and upon it rests the whole justifiability of the operation of colpo-hysterectomy. This fact, at the same time, makes it the duty of a surgeon to remove, when possible, a malignant growth in whatever part of the body found and as soon as discovered. Virchow says: "If cancer in its beginning, and often very long afterward, is a local disease, it must be possible during this period locally to cure it."²

Billroth, De Morgen, and others sustain the same idea. Erichsen³ says: "It cannot be doubted that in some cases a cancerous tumor may be removed with every expectation of the patient being completely freed from the disease." Macewen⁴ says: "The opinion that it is a constitutional disease is productive of the most dire results," adding: "I ask all who agree with me that carcinoma is, at an early period, both a local and a curable disease, to do everything in their power to convince others to that effect, and to try and prevail on all those

¹ Medical Record, January 22d, 1887.

² Virchow's Archiv.

³ Erichsen's "Science and Art of Surgery," p. 1002, vol. i., eighth edition.

⁴ Glasgow Medical Journal, 1886, pp. 287, 291.

who suffer from this affection to submit themselves to an operation at the very earliest moment." Butlin¹ says: "I have no doubt of the power of surgery to cure a certain number of cancerous patients. There need be no hesitation in claiming that all persons who remain well and free from cancerous disease for three years after the operation have been cured of the disease."

Dr. John Williams² considered a case cured if two years have relapsed without recurrence. John Marshall,³ F.R.S., of London, says: "I could point to persons living, and now perfectly well, eight, nine, ten, eleven, and twelve years since operation." Mr. Edgerton Jenkins⁴ said he had notes of cases of cancer in which, after a lapse of five years, in one case thirteen, there had been no return of the disease. Velpeau states that he has perfectly cured patients by the removal of cancerous tumors—at least that no return has taken place for twelve, fifteen, or twenty years after extirpation.

In 1846 Brodie stated that fourteen years previously he removed a breast affected with scirrhous tumor, and the lady was still in good health; and one patient, on whom he performed the operation thirteen years before, continued free from the disease. Ferguson⁵ says: "As excision gives the only chance of security, an operation should always be resorted to, provided the knife can be carried beyond the supposed limits of the disease; and, moreover, I deem it one of the duties of the practitioner to urge the patient to submit to such a proceeding."

Dr. G. F. Shrady,⁶ in the above-mentioned article, says further: "Statistics might be multiplied to prove the chances of radical cure in cases which have been treated by the knife, and of the certainty of prolonging life by excision of cancerous growths. One case was alive and well nineteen years after an operation, another dying of apoplexy eleven years and three months after; one, operated on by Dr. Frank H. Hamilton, survived twenty years, another was living ten years after the extir-

¹ "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons, London.

² "Harveian Lectures on Cancer of the Uterus."

³ "Morton Lectures on Cancerous Diseases," British Medical Journal, November 23d, 1889, p. 1145.

⁴ British Medical Journal.

⁵ Erichsen's "Science and Art of Surgery," p. 1003, vol. i.

⁶ Medical Record, January 7th, 1887.

pation of a cancerous breast; one by Dr. C. Deadrick, of Knoxville, Tenn., survived eight years, and died of another disease."

July 10th, 1877, I removed a scirrhous cancer the size of a lemon from the breast of a woman 39 years of age. Ether was administered by Dr. Lewis Pilcher. At one stage of the operation he suggested that the whole breast be amputated, which indeed was excellent advice; but I was anxious to save the organ, as I had promised the patient to do so if possible. I felt certain that I was cutting into healthy tissue, and that all the malignant disease would be removed. With the tumor I took away a considerable portion of the surrounding structure. This was the safety of the patient. She made a rapid recovery, and when last heard from, nearly twenty years after the operation, was still well and had no recurrence.

I did an operation for removing a similar malignant growth, and of about the same size, from the breast of a woman a few years younger. Ether was administered by Dr. Charles Corey. Now nearly twenty years have elapsed, and there is yet no return of the disease. Another patient, Mrs. T., stronger and more vigorous than either of the two preceding, had in her breast a smaller and apparently less malignant tumor, causing no trouble in any way, and she, thinking it quite innocent, gave it no attention. Finally she was brought to me by a friend of hers. This was in 1888. The little, movable, cherry-sized ball had become fixed, ulceration had commenced, and her whole system was more or less infected. I could only tell the patient that by the removal of the growth, and as much as possible of the surrounding tissue, the progress of the disease might be stayed, which, advancing as rapidly as it now seemed to be, would inevitably in a short time prove fatal. I removed the whole mammary gland and all the glands in the axilla, making the operation most thorough. In about a year the disease reappeared; I again removed the growth, with a liberal amount of the adjoining tissue and all of the newly enlarged glands—cleaned out the whole axillary space. The cancer soon reappeared, and when I, at her request, was preparing for a third operation, the patient was persuaded by some one to go to the Seney Hospital. There the operation was performed by Dr. Lewis Pilcher, and, as I understood, though he removed the rapidly appearing growth at short intervals, still at the end of a few months the patient died in great suffering.

If in this instance the tumor, when it was a little movable ball, had been removed with the tissue in immediate proximity, the patient would probably have had no further trouble, and even the fact of its malignancy might have been questioned. It was then a local disease, had in no way infected the system, and could at that time, I believe, have been entirely eradicated. At that period, too, the operation would have been exceedingly simple; and, according to the teachings of Butlin, who has had vast experience in St. Bartholomew's Hospital, London, there would then have been no necessity to have removed the whole mammary gland, any more than, in an advanced stage of disease of one breast, to remove both. Soon after the inflammatory infiltration commenced, and the cancer epithelia were being carried by the lymphatics to distant parts of the body, and it was no longer a local disease.

Does not vaginal hysterectomy prove that cancer is curable?

Though a comparatively recent operation, and though it has often been performed under the most inauspicious circumstances, yet there are many instances reported where, by this operation, malignant disease has been wholly removed and the individual apparently restored to health. Langenbeck's historical case—one of the first vaginal hysterectomies performed—lived free from the disease for twenty-six years after. Thomas Keith¹ removed a uterus in 1881, and nine years after the operation there was no return of the disease and the patient was in good health.

N. L. Brewis² says: "In May, 1884, Dr. McDonald removed a large, sloughing, cauliflower excrescence from a patient aged 36, and to this day she remains well and free from return." Olshausen tells of two that had no return at the end of eight years, and one at the end of nine years. In his statistics of "five hundred and twelve cases of carcinoma in 1885 in Berlin," he states that "one hundred and sixty-three underwent the radical operation; nearly half were free from relapse two years after." This, in most cases, means a cure. Schauta showed that forty-seven per cent of his cases had no return at the end of two years. Tannen³ reported the statistics of the Breslau

¹ British Medical Journal, January 10th, 1891, p. 58.

² Edinburgh Medical Journal, 1891, vol. ii., p. 1002.

³ Archiv für Gynäkologie, Bd. xxxv., Heft 3. Quoted by H. C. Coe in American Journal of the Medical Sciences.

clinic from June, 1883, to November, 1889: "One hundred and three cases of vaginal hysterectomy—47.4 per cent of the patients were free from the recurrence at the end of three years; several reported as well six years after the operation."

John Williams¹ says, in speaking of his statistics, that twenty-eight per cent of all operations are cured. Of thirty-one of Leopold's cases at Dresden, no fewer than seventeen, or fifty-four per cent, presented no signs of recurrence at the end of three years. Leopold, Schröder, Fritsch, and Martin: Out of two hundred and fourteen, at the end of one year thirty-five were living; at the end of two years, twenty-five; and at the end of three, twenty. Thus twenty at least were cured permanently who without the operation were doomed to certain death.

Billroth, Esmarch, Fischer, Volkmann: Out of six hundred and forty-three cases, sixty-five were well at the end of two years. Martin² says, in his late work, out of sixty-six, eleven died under the influence of the operation, thirty-one have remained free from recurrence of the disease; this gives, therefore, as a result, seventy per cent of cures. Pozzi believes forty or fifty per cent are cured.

Prof. Lane,³ of San Francisco, who was the first to perform the operation of vaginal hysterectomy in the United States (November, 1878), said, September, 1888: "I have operated fourteen times, with one death in forty-eight hours; all the rest are yet living and evidently cured."

Fritsch⁴ reports sixty cases from his clinic at Breslau, and says: "Nine were well at the end of two years, while the remainder were without a return after the first six months," which he considers the most dangerous period. Terrier⁵ tells of two who survived for three years, one for nearly five years, one over six. The following shows statistics of the number who were well at the end of two years: "Billroth, one hundred and forty-five cases—twenty-eight, or 5.5 per cent. Esmarch, two hundred and twenty-five cases—ten, or 11.5 per cent. Fischer,

¹ Transactions of the London Obstetrical Society, 1890.

² "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition, p. 310.

Gynecological Transactions, 1888, p. 207.

⁴ Centralblatt für Chirurgie, June 18th, 1887.

⁵ Revue Médico-Chirurgical des Mals des Femmes, December, 1891.

one hundred and forty-seven cases—twenty, or 8.3 per cent. Volkmann, one hundred and thirty-one cases—seven, or sixteen per cent. Küster, one hundred and thirty-two cases—fourteen, or sixteen per cent; and Martin,¹ sixty-six cases—nine, or sixty per cent.” Thus by timely operation eighty-eight were saved of those who were otherwise certainly doomed.

The conclusion thus forces itself upon us that by a timely operation *one may be cured of this most painful and perilous disease*, as F. H. Martin,² of Chicago, says: “It seems to me that vaginal hysterectomy is the means of the saving of many women from one of the most horrible deaths of which it is possible to conceive.”

Early Mortality.—At first, even with the best operators, there was a large mortality as the immediate result of the operation. It was the most helpless cases that came. There could be no selection. The difficulties were great. It was going into unseen dangers to save hopelessly shipwrecked sufferers. The grave alternative was: Save, or more heavily weight them that they sink even more rapidly! The responsibility was tremendous. Brave, noble, and heroic were these surgeons who thus endeavored to rescue the lost and perishing. It was a marvel that any were saved.

The immediate results of the operation are seen in the following statistics:³

In 1881 Olshausen collected 41 cases with 29 per cent mortality.
In 1883 Sänger “ 153 “ 28 “ “
In 1884 Engström “ 157 “ 29 “ “
In 1886 Hegar “ 257 “ 23 “ “

Immediate mortality up to the end of 1886: Fritsch, 60 cases, 7 deaths; Leopold, 42 cases, 4 deaths; Olshausen, 47 cases, 12 deaths; Schröder, 74 cases, 12 deaths; Staude, 22 cases, 1 death; Martin,⁴ 66 cases, 11 deaths; and Brennecke, 13 cases and no deaths.

Dr. Wm. Duncan⁵ reported to the London Obstetrical Society, January 14th, 1885, two cases of total extirpation of the uterus, one death. He presented all the statistics he could find recorded up to that date, giving 276 in number, 79 deaths—a total mortality of 28.6 per cent.

¹ Annals of Gynecology.

² Journal of American Medical Association, 1890, p. 575.

³ Annals of Gynecology.

⁴ Ibid.

⁵ Transactions of London Obstetrical Society, January, 1885.

RESULTS OF INDIVIDUAL OPERATORS—STATISTICS OF W. DUNCAN.

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Ahlfeld	2	1	Freund	2	1
G. Bantock	1	1	Hahn	7	2
Bardenheur	1	1	Helferich	1	..
Baum	4	2	Malins	1	1
Bernay	1	..	Netzel	1	1
Billroth	12	4	Ogston	2	1
Bockel	1	..	Olshausen	25	7
Bolling	1	..	Sänger	2	1
Bompiani	1	1	Schatz	10	3
Bottini	3	..	Schede	2	2
Brunner	10	3	Schröder	27	8
Calderini	1	1	Simpson, A. R.	1	1
Caselli	1	1	Tauffer	5	1
Czerny	11	3	Teuffel	7	3
Demons	4	2	Thiersch	6	1
Duden	2	1	Thornton	1	1
Edis, A. W.	1	1	Williams, John.	3	2
Engström, O.	2	1	Zweifel	3	1
Esmarch	2	1			

Dr. Sarah Post¹ collected over 700 performed before the end of 1857, with the total death rate of 24 per cent. At a meeting of the Surgical Society of Paris, Terrier² reported 34 operations with an immediate mortality of 25 per cent.

Maurice Hache³ gives 495 operations in which the mortality was 24.29 per cent :

Before 1883.....	164 hysterectomies for cancer.....	43 deaths..	26.21%
In 1883.....	79 hysterectomies for cancer.....	18 deaths..	22.28%
In 1884.....	107 hysterectomies for cancer.....	27 deaths..	25.23%
In 1885.....	69 hysterectomies for cancer.....	14 deaths..	20.28%
	4 hysterectomies for other causes.....	1 death ..	
In 1886.....	59 hysterectomies for other causes.....	15 deaths..	25.42%
	7 hysterectomies for other causes.....	1 death ..	

THE FOLLOWING STATISTICS OF INDIVIDUAL OPERATORS.

	Deaths.	Cases.		Deaths.	Cases.
Baum	2	5	Müller	4
Billroth	4	12	Bottini	5
Teuffel	3	5	Staudé	17
Czerny	3	8	Martin	18	85
Hahn	1	5	Fritsch	2	23
Thiersch	1	4	Péan	3	5
Schatz	3	10	Brennecke	21
Schröder	9	34	Novaro	10	20
Tauffer	1	5	Buttlehner	1	9
Olshausen	7	32	Terrier	2	10
Demons	2	5	Bonilly	3	11
Duvelius	1	8	Trélat	1	4

Total, 81 deaths in 358 operations, or 22.62%.

¹ "Colpo-hysterectomy for Cancer," American Journal of Medical Sciences, January, 1886.

² Revue Medico-chirurgical des Mals des Femmes, December, 1891.

³ Revue des Sciences de Méd., Paris, xxix., pp. 721-739.

Dr. A. P. Dudley gives in his tables the following statistics of individual operators and the results:¹

Operator.	Opera-tions.	Date.	Result.
Dr. Anderson, San Francisco.	1	Oct., 1881 ..	Recovery with a vesical fistula.
Dr. W. H. Baker, Boston..	1	March, 1885.	Recovery.
Dr. A. C. Bernays, St. Louis	6	1883 to 1885.	Recovery.
Dr. J. C. Blake, Boston....	1	Jan., 1885 ..	One death in twelve hours from shock.
Dr. W. T. Bull, New York.	5	1883 to 1886	One death.
Dr. Burke, Connecticut ..	1	Nov., 1882	Recovery rapid.
Dr. Cushing, San Francisco	1	Sept. 4, 1881	Recovery rapid.
Dr. B. F. Dawson, N. Y.	1	April, 1885..	Death on third day from fever.
Dr. D. Vecchi, San Francisco.	2	March, 1883.	Recovery.
Dr. A. Palmer Dudley, New York.	2	Dec., 1883, to 1886.	One death thirty-nine hours from acute nephritis.
Dr. E. C. Dudley, Chicago.	1	May 23, 1882	Died in four hours from shock.
Dr. J. W. Elliot, Boston...	1	May, 1885 ..	Death on fifth day from hemorrhage.
Dr. P. F. Eve.....	1	Apr. 16, '50.	Recovery.
Dr. C. Fenger, Chicago....	1	Sept. 19, '81.	Recovery rapid.
Dr. M. Franklin, Philadelphia.	1	Nov. 11, '82.	Death on fifth day from shock.
Dr. Goodell, Philadelphia..	1	Nov. 11, '82.	Death caused by septicemia.
Dr. R. J. Hall, New York..	1	Aug., 1886..	Recovery.
Dr. J. B. Hunter, New York.	1	Oct. 24, 1885	Death same evening from shock.
Dr. E. J. Ill, Newark, N. J.	1	May 30, 1885	Recovery.
Dr. J. Taber Johnson, Washington.	1	June, 1885 .	Death in four hours from peritonitis.
Dr. F. Lange, New York..	1	Nov. 11, '86.	Recovery rapid.
Dr. L. C. Lane, San Francisco.	9	1878-1886....	Three deaths.
Dr. W. H. May, Stockton, Cal.	1	Sept., 1882 ..	Death on fifth day.
Dr. Paul F. Mundé, N. Y..	3	1883 to 1885.	Two deaths. ²
Dr. Polk, New York	6	July, 1884, to 1886.....	Two deaths.
Dr. Reamy, Cincinnati.....	2	1886.....	One death in forty-eight hours from shock.
Dr. W. E. Taylor, San Francisco.	2	Aug., 1881 ..	Recovery rapid.
Dr. Thomas, New York....	1	Oct., 1882 ..	Died on seventh day from septicemia.
Dr. Von Ramdohr, N. Y...	1	July, 1886 ..	Recovery.
Dr. Von Hoffmann, San Francisco.	Aug., 1883, to 1884.		Recovery.
Dr. R. F. Weir, New York.	2	Nov., 1884, to 1885.	One death from shock and loss of blood.
Dr. Wile, Danbury, Conn...	1	Nov., 1888 ..	Died third day from shock.
Dr. C. M. Wilson, Philadelphia.	1	1896.....	Recovery.

¹ New York Medical Journal, "Vaginal Hysterectomy in America," July 9th, 1887.

² In the New York Medical Journal of July 30th, 1887, Dr. Mundé says: "I desire to add to this number two cases which I operated on February 2d and 23d, 1887, with recovery; also a third which has thus far progressed so favorably that I have no reason to doubt the patient will recover."

The following is from a table of J. F. Binnie, Kansas City :

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Baer	2	1	Kaltenbach . . .	80	2
Bernays	22	2	Leopold	83	5
Bokelman	19	2	Munchmeyer . . .	80	4
Brennecke	21	0	Slawjanski	80	9
Byford	20	1	Tannen	103	10
Carson	4	2	Gill Wylie	20	1
Eastman	13	3			

Dr. John Scott¹ says : " In 1889 the immediate mortality in San Francisco was twenty to twenty-five per cent."

F. H. Martin, of Chicago, gives, January 31st, 1891, the following statistics of individual operators :

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Boldt	15	1	M. D. Mann	4	1
Bull	6	1	Pinkham, J. S. . .	4	0
Byford	20	1	Reamy ²	12	2
H. C. Coe	8	3	H. C. Coe, and		
E. C. Dudley	6	1	Jas. B. Hunter ³ . .	19	6
S. E. Gordon	3	1	Bache Emmet . . .	4	1
R. B. Hall	1	1	Etheridge ⁴	4	1
J. Taber Johnson	5	3	E. W. Montgomery	3	1
E. E. Montgomery	5	1	W. M. Polk ⁵ . . .	22	5
H. O. Marey	4	2	Péan, 1886-1887 . .	22	7
F. H. Martin	5	0	Edebohls ⁶	5	1

The above statistics show as the immediate results of the operation a mortality of over twenty per cent. But we find just as great mortality in the removal of malignant disease from other parts of the body. Butlin⁷ gives the following statistics of operation on other parts of the body for cancer:

¹ Gynecological Transactions, 1884, p. 230.

² Journal of the American Medical Association, Chicago, 1891, vol. xvi. p. 152.

³ AMERICAN JOURNAL OF OBSTETRICS, July, 1890.

⁴ Journal of the American Medical Association, December, 1887.

⁵ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 878.

⁶ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 881.

⁷ "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons.

"Sixty-five cases of complete extirpation of the larynx for carcinoma, with thirty deaths due to the operation, and only one patient alive and well more than two years after. Six cases of esophagectomy, with three deaths; of the three patients who survived the operation, two were known to have died of recurrence of the disease, and the third was lost sight of. Forty patients from whom malignant tumors of the kidney were removed, with twenty-eight deaths. Of the recoveries only one was permanent, the others having been followed speedily by the recurrence of the disease (Gross). One hundred and forty-eight cases of removal of the uterus through the abdominal incision, with one hundred and six deaths; and Gusserow says 'that all the patients whose histories have been followed up suffered from recurrence of the disease.' Fifty removals of cancerous thyroid, with thirty deaths; of those who recovered from the operation, only two survived more than a year. Fifty-five patients from whom cancer of the pylorus was recovered, of whom forty-one died from the operation, and not one is known to have made a permanent recovery.

"Here," says Butlin, "are the records of surgical operations on six parts of the body, the total number of cases three hundred and sixty-four, with one hundred and twenty-six recoveries, two hundred and thirty-eight deaths due to operation! And only two alive and well at the end of two years!" Still, Butlin wisely observes: "The two hundred and thirty-eight persons who perished of the operations were in any way doomed to death within a short period, and so large a mortality is more than justified by the cure of one hundred and twenty-six persons who would have died but for the operation."

Only by an operation could these be saved, and the object should be to save as many as possible. J. C. Cullingworth,¹ of St. Thomas' Hospital, London, says: "If every newly performed operation that shows at first a high death rate is to be at once denounced as unjustifiable, there is an end to surgical enterprise and surgical progress."

Later Statistics.—The immediate mortality in colpo-hysterectomy for cancer continues to diminish. In 1886 A. Martin gave the statistics of vaginal hysterectomy as three hundred and

¹ Transactions of the London Obstetrical Society, 1890, vol. xxxii., p 160.

eleven cases with forty-seven deaths, that is, 15.1 per cent; at the same time the death rate for breast amputation was 15.6 per cent. When Tannen reported the work of the Breslau Clinic the mortality in the first sixty cases was 11.6 per cent; in the last forty-three cases 6.9 per cent. Thus statistics everywhere are showing continually a better per cent; and with increased knowledge of the operation, and opportunities of judging of the condition of patients, there will be increasingly better results. When Dr. Wm. Duncan presented his paper on "Total Extirpation of the Entire Uterus" to the London Obstetrical Society, January 14th, 1883, reporting two cases, one death in twelve hours, every speaker who took part in the discussion agreed with Dr. Duncan in condemning the operation as unjustifiable, except two, Sir Spencer Wells and Dr. Graily Hewitt. At the close of the discussion Dr. Duncan¹ expressed himself as feeling sure that further experience would never bring the mortality down from 28.6 per cent to that which follows supravaginal amputation, 7.5 per cent.

This assertion is being every day disproved by the recent work of many operators. Joseph Price² reported fifty-four cases, with one death; Gill Wylie, thirty-one cases, with one death; H. J. Boldt,³ forty-four cases, with three deaths; F. Krug,⁴ fifteen operations done from June, 1888, to March 9th, 1889, with one death; E. W. Cushing,⁵ thirty-eight cases, with one death of those under his immediate care; Charles A. L. Reed,⁶ Cincinnati, eleven cases, with one death; Dr. T. A. Reamy,⁷ nine cases, with one death. Probably in the next fifty of each of these operators there will be no deaths.

J. Sinclair,⁸ Manchester, England, in his last twenty-one cases had only one death; James Braithwaite, in twelve cases, one death. In 1889 Kaltenbach reported sixty-two cases of total extirpation

¹ Transactions of Obstetrical Society of London, January, 1885.

² Annals of Gynecology and Surgery, June, 1892.

³ AMERICAN JOURNAL OF OBSTETRICS, October, 1892, p. 540, "Vaginal Hysterectomy for Cancer of the Uterus."

⁴ AMERICAN JOURNAL OF OBSTETRICS, 1891.

⁵ Annals of Gynecology and Surgery, June, 1892.

⁶ Transactions of American Association of Obstetricians and Gynecologists, 1890.

⁷ Gynecological Transactions, 1888, p. 205.

⁸ British Medical Journal, November 8th, 1890, p. 1065.

of the uterus, with two deaths; Leopold, one hundred and ten cases, with six deaths; Schauta reported sixty-five cases, with five deaths; Fritsch, sixty cases, with an immediate mortality of seven; Münehmyer, eighty operations, with four deaths. At the Third Congress of the German Gynecological Society, held in Freiburg in June, 1889, Münehmyer¹ reported that, in one hundred and sixty cases of total extirpation of the uterus performed at Dresden between the years 1883 and 1889, the total mortality was 5.4 per cent. Of the one hundred and twelve operations, fifty-two were performed in succession without a single death; in eighty, only four of the patients died from the effects of the operation. Greig Smith² says: "Brennecke has had eighteen cases and Staude sixteen, all successful; Fritsch lost seven out of sixty, Martin eleven out of sixty-eight; Bull, of New York, five cases, one death. It will therefore be seen that in skilful hands the operation is far from being unjustifiable on account of its mortality."

Thus hysterectomy for cancer may become *a comparatively safe operation*, and by it the patients may be entirely cured of cancerous or malignant disease. The practical question now presents itself: *Can malignant disease be as successfully removed by high amputation as by entire extirpation?*

If we could be certain that the malignant growth was confined to the cervix, then high amputation might be considered; but by what knowledge or insight can we know this? How can the surgeon possibly tell that the disease is limited to the cervix and has not extended beyond? Is there any way for him to find this out? Even if, to the naked-eye appearances, the disease is limited to the cervix, there may still be independent nodules and cancer nests in the fundus; when apparently only a part of the cervix is affected, profound disease may be in other portions of the uterus. This has been repeatedly seen and emphasized by great surgeons both in this country and in Europe. Many instances are recorded where the disease in the cervix was comparatively slight, and even surrounded with healthy tissue, yet in the fundus there were malignant formations even more advanced and more serious. So when cancerous disease is found

¹ Transactions Obstetrical Society of London, 1890, p. 159.

² "Abdominal Surgery," second edition, p. 209.

in any part of the uterus the only safe procedure is to remove the whole organ. H. J. Boldt¹ says: "The entire uterus should be removed, even if seemingly the disease is only in its beginning at the portio or cervix." Cushing:² "It is not possible to decide how far up in the uterus the disease has extended." Thomas Keith:³ "I never hesitate between the partial and complete removal; for all we know, there may be cancerous nests in the very fundus, even though the disease may seem to the eye quite local and limited." N. T. Brewis:⁴ "I would always advocate hysterectomy in preference to partial removal, for in removing the cervix alone we may leave behind an infected body." Krug:⁵ "It is absolutely impossible to determine the extent of the disease before or even during this operation. I do not think we are allowed to do so imperfect and unreliable an operation as high amputation." E. E. Montgomery⁶ says: "We cannot, however, but coincide with the opinion of Brennecke that when any portion of the uterus is the seat of cancer, however slight, extirpation of the whole uterus is indicated." Reed⁷ says: "If careful pathologists find it extremely difficult to make out the marginal lines by means of powerful lenses in the leisure of the laboratory, how impossible for the naked eye in the necessary hurry of the operating room!" George M. Gould⁸ says: "Carcinomatous nodules have been found in the body of the uterus when apparently the cervix was infected with but the very earliest stages of the disease." Richelot⁹ repeats the fact that when the disease was apparently limited to the cervix secondary nodules were found in the corpus uteri, and reported illustrative cases. Polk¹⁰ says: "Within the limits, the operation was the only one to do; it is not worth while to consider any other procedure."

¹ AMERICAN JOURNAL OF OBSTETRICS, October, 1892, p. 534.

² AMERICAN JOURNAL OF OBSTETRICS, April, 1892, p. 436.

³ British Medical Journal, January 10th, 1891, p. 58.

⁴ Edinburgh Medical Journal, p. 1003.

⁵ Transactions of the American Association of Obstetricians and Gynecologists, 1890.

⁶ Transactions of the American Association of Obstetricians and Gynecologists, 1889, p. 141.

⁷ Buffalo Medical and Surgical Journal.

⁸ Medical News, December, 1888, p. 702.

⁹ Nouvelles Archives d'Obstétrique et de Gynécologie, 1892.

¹⁰ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 878.

In my microscopical investigations I have often seen the lymphatics stretching along through the tissues, conveying their burden of epithelia far away from the seat of origin, and depositing portions at varying points, which become new centres of infection. No one can say how far these lymphatics have travelled, what has been their course, or where the deposits have been made. There is no method by which we can possibly tell how far the cancerous disease has advanced. With this doubt, this dread uncertainty, will any one dare remove only a part of the uterus, and possibly leave the most flagrant portion of the disease? Can we subject a patient to so great a risk with so dangerous a possibility? Yet no doubt, in innumerable instances, by high amputation all the disease has been removed. As an operation it has doubtless done great good, saved the lives of many, and the operation has been sanctioned and practised by some of our most eminent surgeons.¹ Still, must there not always be with it an increased cause for uncertainty?

Probably the strongest reason in favor of total hysterectomy is the fact that around every malignant growth there is an inflammatory infiltration. Virchow² says: "Three to five lines beyond the apparent limits the tissues are already in a state of disease and exhibiting the first traces of a new zone." I have over and over again seen this inflammatory infiltration, have marked out the zone, and with high powers of the microscope have many times demonstrated beyond doubt that the inflammatory corpuscles of this zone were changing to cancer epithelia; from being round they were becoming polyhedral in form. I have repeatedly watched this marvellous change into cancer epithelia. This *inflammatory zone is really cancerous in its nature*, and no operation for the removal of the tumor is complete unless all the zone of inflammatory infiltration is removed. This is the only safe method; and in case of can-

¹ One case remained free from recurrence nine years after an operation by Dr. Sims in the Woman's Hospital. In 1882 Dr. Baker reported that "out of ten cases operated upon by high amputation, when the diagnosis was confirmed by the microscope, six were alive after four years; after ten years, five of them, or fifty per cent, were alive and perfectly well" (AMERICAN JOURNAL OF OBSTETRICS). Both Dr. Sims and Dr. Baker have done most excellent work and deserve the thanks of all.

² "Cellular Pathology."

cer of any part of the uterus it becomes almost a necessity to remove the whole organ. When all the surrounding inflammatory infiltration is not taken away the disease surely returns, or rather continues. As verifying this, it has been repeatedly noted and stated by observers that recurrence almost uniformly takes place near the cicatrix. Heidenhain says: "The recurrences are on the margin of the old incision." J. Marshall,¹ of London, says: "The new growth is exactly between the cicatrix and healthy tissue." H. C. Coe² has observed that "the early recurrence of the disease is nearly always at the border of the cicatrix." Virchow³ has also stated that recurrence usually takes place in this zone.

The almost uniform recurrence so near the original disease is doubtless because all the zone of small cellular infiltration had not been removed. This surrounding infiltration is part and parcel of the abnormal growth, is cancerous in its nature, and should invariably be included with the tumor in any operation that may take place. Surgeons have long recognized that for the safety of a patient a large area of tissue around a growth should be condemned. Macewen⁴ says: "There is tissue, beyond the mere hard border of the tumor, which is already implicated by epithelial elements." J. Sims Woodhead⁵ says: "From a careful microscopical examination of many hundreds of cancer, I am firmly of the opinion that many surgeons make the mistake of not removing sufficiently freely either the tissues in which a cancerous growth has made its appearance, or the lymphatic glands associated with the organ in which the cancer is developed." Shrady⁶ says in unmistakable words: "I am firmly convinced that operations, as a rule, are not radical enough to insure a complete and thorough removal of the disease." Butlin⁷ says: "It is always necessary to remove some of the surrounding tissue, in some instances a very wide area, in order to prevent a

¹ British Medical Journal, November 23d, 1889, p. 1144.

² AMERICAN JOURNAL OF OBSTETRICS, June, 1890, p. 594.

³ Archives.

⁴ Glasgow Medical Journal, 1886, p. 289.

⁵ British Medical Journal.

⁶ Medical Record, January, 1887.

⁷ "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons, London.

recurrence of the disease." J. Marshall,¹ of London, repeats: "Do not be timorous and hesitating, do not care about a scar, but sweep away to a great distance; it does not matter about deformity—it is the preservation of the patient's life."

Sir Spencer Wells² remarks: "It will sometimes be the painful duty of the surgeon to urge upon a patient to sacrifice a limb in the hope of saving life; and if this advice is followed before infection of the glands has taken place the result has often proved the soundness of the advice; while too great delay, or want of earnestness in urging submission to so serious an alternative as the loss of a limb must always be, may lead to protracted suffering and inevitable death."

With these considerations, and especially recognizing the inflammatory infiltration that is around every malignant growth, the boundaries of which we cannot tell, does it not follow that in every case of cancer of the cervix complete hysterectomy becomes the only safe and conservative procedure? Keith³ says: "No one nowadays thinks of removing a bit of cancerous mamma." E. E. Montgomery,⁴ of Philadelphia, asserts "that in all cases of cancer, when confined to the uterus, whether of the body or cervix, vaginal hysterectomy is the only justifiable operation."

Entire hysterectomy is not only a safer procedure as to removing all the disease, but it may be made almost as simple an operation as high amputation. Indeed, in many instances it is less difficult, attended by less danger, less shock, has a more rapid convalescence, the wound heals more promptly, and, finally, this operation gives more certain results as to a permanent cure. Schatz, who has performed both operations, wrote in 1883: "The danger of high amputation does not seem to be much smaller than total extirpation." C. A. L. Reed,⁵ of Cincinnati, says: "High amputation is a more difficult and more dangerous

¹ "Morton Lectures on Cancerous Diseases," November 23d, 1889.

² British Medical Journal, December 8th, 1888, p. 1266. "The Morton Lectures on Cancer and Cancerous Diseases," delivered at the Royal College of Surgeons, England, November 29th, 1888.

³ British Medical Journal, January, 1889, p. 57.

⁴ Transactions of the American Association of Obstetricians and Gynecologists, p. 194.

⁵ Buffalo Medical and Surgical Journal.

operation than vaginal hysterectomy." E. W. Cushing¹ says: "Total extirpation is not more difficult and very little more dangerous than the really high amputation of the cervix, and it affords greater immunity from relapse." Krug² says: "I cannot concede that high amputation, done in the proper way, is, as a rule, a less difficult operation than vaginal hysterectomy. I like to be seen in the front rank of aggressive surgery whenever malignant disease is conceded." J. E. Janvrin,³ with regard to high amputation and vaginal hysterectomy in cancer of the uterus, says he has found the latter operation decidedly easier to perform. Prof. Sinclair,⁴ of Manchester, states that "although vaginal hysterectomy is called major, it is perhaps less dangerous than some of the so-called minor operations." Fatal primary hemorrhage has followed excision of the cervix uteri. T. A. Emmet⁵ says "he has removed the cervix in several cases in which the hemorrhage was as profuse as a post-partum hemorrhage; in one case the blood ran through the bed and upon the floor." Krug⁶ finds "it is more difficult to control hemorrhage in high amputation." Coe says "in one of his cases the hemorrhage which arose when he started to do high amputation proved so great that he abandoned the procedure." Franklin H. Martin,⁷ of Chicago, says: "The most tedious operations which I have seen in surgery have been amputations for cancer of the cervix. The most bloody have been these same operations. I believe the mortality of vaginal hysterectomy will soon become so low that the unsurgical procedure of high amputation for cancer will be considered no longer justifiable." He further says: "Vaginal hysterectomy is the most justifiable surgical procedure we yet know of for the cure of cancer of the uterus." J. C. Cullingworth,⁸ of London, stated that, after careful study of vaginal hysterectomy in Germany and high amputation in England, he had found that the mortality of the former was five per cent, while that of the latter was seven per cent.

¹ AMERICAN JOURNAL OF OBSTETRICS, April, 1892.

² Ibid., p. 621.

³ Ibid., 1890, p. 646.

⁴ London Lancet, May 17th, 1890.

⁵ AMERICAN JOURNAL OF OBSTETRICS, Supplement, March, 1882, p. 68.

⁶ Ibid., 1890, p. 635.

⁷ "A Plea for Early Vaginal Hysterectomy for Cancer of the Uterus." Journal of the American Medical Association, January 21st, 1891.

⁸ Transactions of the Obstetrical Society of London.

Martin¹ says: "Out of twenty-eight women on whom I have operated only two have remained free from relapse for somewhat over a year, and have then in a short time succumbed to the disease, although I repeatedly excised and destroyed the incipient recurrence most thoroughly." Hofmeier has forty-five per cent of permanent recoveries from high amputation, while Martin, from entire extirpation, has seventy per cent. John Williams says: "Supravaginal amputation gives better results"; yet Williams did supravaginal amputation four times, and the only patient who recovered died a month after of fecal fistula high up in the small intestines. Krug² goes still further, saying: "To my mind there is absolutely no place for high amputation in cancer of the womb. As compared with vaginal hysterectomy, it is more unreliable, more difficult, and more dangerous."

The constitution of a woman seems to be more tolerant of hysterectomy than of any other grave operation connected with the pelvis or the abdomen. After this operation I have seen patients lie perfectly at ease, comfortable, and as if relieved, reminding one of Schröder's remark that "a woman, after total extirpation of the uterus through the vagina, resembles rather a puerpera after a post-partum hemorrhage than a patient who has just experienced a severe operation." T. Gaillard Thomas³ tells of "a young woman who had given birth to a child eight years previously. While making a violent effort at rolling tenpins, suddenly felt something give way within her, after which she suffered the most intense pain. Dr. Willard Parker, being called to see her, coincided with the opinion of the attending physician that a polypus had been suddenly expelled and was hanging in the vagina. He removed the whole mass, when, to his surprise, he found he held in his hand the inverted uterus with its tubes and ligaments. The patient recovered without any bad symptoms." I am informed upon reliable authority that a woman in Maine, long annoyed with the protruding organ, one day, in her desperation, seized a knife and cut it off. She held the cut tissues firmly till hemorrhage ceased, then went on with her hoeing, and suffered no after-inconvenience.

¹ Annals of Gynecology.

² Transactions of the American Association of Obstetricians and Gynecologists, p. 201.

³ "Diseases of Women," 1868, p. 339.

Even if high amputation were as efficient and attended with no possible danger, where could be the advantage of leaving a portion of the uterus? Can it in any way be of any service? Is it not an added danger? Some say "it may give a woman a chance of conception." That would certainly seem a sufficient reason, but such parturitions are apt to result in the death of the mother as well as the loss of the child.

Dr. A. Vander Veer,¹ of Albany, N. Y., in his paper on the management of cancer complicated with pregnancy, said: "Out of nearly three hundred women suffering from cancer of the uterus and in labor, fifty-two per cent died undelivered or never left their beds; and of children only thirty-three per cent were born living, hardly twenty per cent lived until the mother left the childbed." Dr. Vander Veer therefore concludes that total extirpation should be the rule and the operation should be done at the earliest moment.

It is also to be noted that pregnancy, or any change of tissue or inflammatory action, causes the malignant disease to advance more rapidly, and labor at term may be accompanied by the most disastrous consequences. In 1886 Dr. Charles Jones was called to a case of confinement. The cervix was one hard mass of firm, unyielding cancerous infiltration. Dr. J. R. Goffe was in consultation. The physicians did everything possible to save the patient, but finally had to resort to abdominal section. Both mother and child perished. If hysterectomy had been done early in gestation the mother, at least, would have been saved. The child would have been lost in either case.

C. A. L. Reed² tells of a similar instance: "Numerous incisions were made in the cervix, forceps were applied, labor completed. Mother and child alike perished." In the British Gynecological Society, November 13th, 1889, Dr. B. Fenwick³ showed a pregnant uterus, at about the third month, removed by hysterectomy for cancer of the cervix. "Two years previously the cervix had been cauterized; six months later malignancy became more manifest and the cervix was amputated. Six months after the patient was found to be two months pregnant. It was decided

¹ New York Journal of Gynecology and Obstetrics, July, 1892.

² Buffalo Medical and Surgical Journal.

³ British Gynecological Journal.

to induce abortion, but it was impossible to discover any trace of a cervical canal in the hard remnant of the cervix."

Dr. Coe,¹ in his article, observes: "As soon as a diagnosis of a malignant growth is rendered certain, total extirpation of the uterus should be performed without delay." He goes further and says: "With the results of modern aseptic surgery before us, we are not justified in waiting until the diagnosis has been established beyond the shadow of a doubt and the patient's health has been seriously undermined before we decide upon radical measures. I need only call attention to the fact that I performed total extirpation of the uterus in Cases 1 and 2, although by no means certain that I should find malignant disease, and was much relieved to find my suspicions were justified."

Many operations have been performed when it was not certainly known that the disease was malignant. Krug states that "he operated on one case in which there was a doubt about the diagnosis." Dr. James B. Hunter² reported to the New York Obstetrical Society, December 20th, 1887, that "he had suspected malignancy and so had performed vaginal hysterectomy; that the specimen had not then been examined by the microscope." Dr. Baldy,³ of Philadelphia, says: "It is fast becoming the habit to operate on all suspicious cases." Jonathan Hutchinson⁴ said: "I have held that cancer is, in its beginning, a local disease, and to recommend operations so early that they might almost rank as anticipatory." The absence of pain, the absence of hemorrhage, or the absence of offensive discharges does not necessarily prove there is no malignant disease. E. E. Montgomery says: "The uterus should be removed on suspicion; that, when there is a doubt which cannot be solved, the patient should have the benefit of this doubt." Also, that he has removed some that were afterward found not to be cancerous. Haché makes mention of similar instances. "Pichevin,"⁵ in a clinical lecture, showed an interesting case in which an ulceration of the

¹ AMERICAN JOURNAL OF OBSTETRICS, June, 1890.

² AMERICAN JOURNAL OF OBSTETRICS, February, 1888.

³ Annals of Gynecology.

⁴ Glasgow Medical Journal, 1886, p. 338.

⁵ Nouvelles Archives d'Obstétrique et de Gynécologie, 1892, No. 2; quoted from H. C. Coe, American Journal of Medical Sciences, July, 1892.

cervix uteri had been diagnosticated as commencing epithelioma, and cauterized. The marked induration of the cervix and the decline of the patient's health seemed to confirm the diagnosis, and hysterectomy was advised. A bit of the tissue was excised for microscopical examination, and it was found not to be malignant. The true condition had been masked by cauterization." Dr. Coe¹ says "he has examined uteri removed by eminent surgeons in this city in which there was no malignant disease at all, the condition being simple erosion of the cervix." He said at the meeting of the American Gynecological Society, September, 1892, that "he had examined several uteri removed for supposed cancer which did not exist." Landau² admits that "he as well as other surgeons knows of cases of removal of the uterus for beginning epithelia of the cervix in which the condition was found to be simple erosion, and of other cases in which adenoma or intra-uterine polypus was mistaken for corporeal epithelioma."

Better remove a few with no malignant disease than to leave one cancerous uterus, and a patient with the awful risk of dying from a condition that the surgeon could have remedied. T. A. Emmet,³ speaking of cancer of the uterus, said: "In this disease there should be no delay in operating, and the patient should always have the benefit of a doubt and be relieved of any suspicious growth." There is one way to settle the question as to malignancy and clear up all doubt, and that is by a microscopical examination. *Such examination should in every instance be made.* It will prevent all mistakes and possibly subsequent regrets." Schatz⁴ says: "In the beginning a malignant growth cannot be distinguished from an extensive erosion," so he advises that a piece of the cervix should be excised and examined microscopically.

I had one case which gave, in the history, symptoms, and naked-eye appearances, every indication of being malignant. The woman was 50 years of age; had an indurated, ulcerated cervix and bloody discharges. I had no doubt of malignancy; but, as is my uniform rule, I submitted a portion of the diseased tissue

¹ AMERICAN JOURNAL OF OBSTETRICS, 1890, p. 645.

² American Journal of Medical Sciences, October, 1889.

³ "Principles and Practice of Gynecology," p. 514.

⁴ Zeitschrift für Geburtshülfe und Gynäkologie, Band xiii., Heft 1.

to a careful microscopical examination. The disease proved to be benign, and the subsequent history of the patient confirmed the diagnosis. Without the microscopical examination I should certainly have considered it my duty to have removed the uterus. The patient submitted entirely to my judgment, as every patient for whom I have ever performed an operation has done.

In many cases it is impossible to tell certainly without a microscopical examination. Dr. Playfair¹ mentions an instance where, "a soft, fungating mass of malignant disease filling the uterine cavity, he suggested the possibility of extirpation. Three years after he met the lady's medical attendant, who stated that she was then well and in comparative good health." A short time since Dr. Charles N. D. Jones, in New York, for prolonged and repeated hemorrhages, curetted a uterus, after which the patient seemed to be doing well, hemorrhage stopped, and he and the attending physician supposed she would have no further trouble. Still, Dr. Jones had the scrapings examined microscopically. This was done by Dr. C. Heitzmann; the disease proved to be small round-celled sarcoma. A few days after, when the uterus was successfully removed, the sarcoma was found to be located in the fundus near the entrance of the left Fallopian tube. But for this microscopical examination the woman would have perished. She is now doing well.

John Williams,² in the Harveian lectures, describes cases of the disease in the earliest stages, when the diagnosis was rendered possible only by the microscope. E. W. Cushing³ has well said: "The microscope is of the greatest service. In some cases the diagnosis can only be made by it"; adding, when the diagnosis becomes easy, the disease has usually progressed to a state where operation is difficult, or perhaps impossible. Dr. Boldt⁴ expresses the idea that "malignant disease can be positively diagnosed in its early stages only by employing the microscope." Ruge and Veit report numerous cases in which the development of malignant disease of the portio vaginalis was revealed by the microscopical examination of excised bits of the

¹ Transactions Obstetrical Society of London, 1885, vol. xxvii., p. 42.

² British Medical Journal, January 8th, 1887, p. 50.

³ AMERICAN JOURNAL OF OBSTETRICS, April, 1892, pp. 435-437.

⁴ "Vaginal Hysterectomy for Cancer of the Uterus," AMERICAN JOURNAL OF OBSTETRICS, October, 1892.

suspected tissue long before palpation and inspection furnished evidence of the true condition. Wylie¹ says "the first thing he does is to submit portions to a good pathologist for examination." Greig Smith² gives the same advice, and insists that "when diagnosis is doubtful, granulations should be removed and examined by the microscope."

A. Martin,³ of Berlin, says: "The recognition of the early stages occasions very extraordinary difficulties. All the clinical symptoms which are referred to as indicating malignant disease may fail us; no peculiarity of the result of digital examination helps to give the necessary certainty, which at present we can gain only by microscopical examination." He warns against wishing to make a diagnosis based on the results of digital examination and on the clinical symptoms, and says elsewhere: "The possibilities of a diagnosis can only be attained by scraping off pieces of the mucous membrane, as described above, and submitting them to microscopic examination"; adding, "when the presence of carcinoma is indubitably established by the microscope, to perform the extirpation of the whole uterus." Prof. Lane⁴ says: "I verified the disease with the microscope, and in every case it reached much further in than it seemed from the outside."

Dr. Lewis Pilcher⁵ says: "In view of the great difficulties of diagnosis, it must in any case be required in all reports of recoveries that the actual condition be determined by the help of the microscope. The careful surgical statistician of the present and of the future is compelled to exclude from all consideration in his studies and from his conclusions every case in which the character of the diseased tissue removed has not been examined and certified to by a pathologist of recognized position. The lack of such pathological testimony requires us to reject a large proportion of the reports that have hitherto been made of the results of operation."

I agree entirely with Dr. Pilcher. A microscopical exami-

¹ International Journal of Surgery, 1891, p. 190.

² "Abdominal Surgery."

³ "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition, p. 810.

⁴ Gynecological Transactions, 1888, p. 207.

⁵ "The Ultimate Results of Operation for Removal of Uterine Appendages."

nation is essential not only for certain diagnosis and to obtain reliable scientific data, but justice to the patient demands it. Besides, the microscope shows the exact pathological changes that take place in the structure of various organs, and so gives new light as to the nature of disease, and will thereby help in finding a means of prevention and cure. Fully impressed with the seriousness and importance of this subject, I was the more surprised when, on one occasion, I heard a Brooklyn surgeon, Dr. A. J. C. Skene, when asked, "What aid to a surgeon practising gynecology is the microscopical examination"—of two of the most vital structures of woman's genital organization, viz., the tubes and ovaries—answer, "None whatever." "Why not?" "Because you cannot submit them in the living subject to microscopical examination; it is only after they have been removed that they can be examined. It is only an aid for the examination of surfaces; it is utterly useless in ovarian diseases."

Yet all great surgeons the world over are earnestly looking to the teachings of the microscope to know more of the minute anatomy of each and every organ, the pathological changes that may occur, the nature of these changes, so that they may learn more of the etiology of disease, how to prevent, cure it, or check its ravages. All want to help suffering humanity, and all are interested in looking into these teachings. Most of the discoveries in pathological anatomy are from microscopical researches. Indeed, the whole science is founded upon this. By microscopical researches *Virchow's Archives* have reached one hundred and twenty-nine volumes. It is just as interesting to look at the thirty-nine volumes of *Archiv für mikroskopische Anatomie*. Paget, in his "Surgical Pathology," gives repeatedly the microscopical appearances. So Quain largely depends upon the teachings of the microscope for his "Elements of Anatomy." The Morton, the Harveian, and other great scientific courses of lectures, instituted and endowed to increase our knowledge and extend the boundaries of medical science, have sought in the microscope the needed help. When John Williams gave his Harveian lectures on cancer he illustrated the subject by drawings made from the specimens and from microscopical sections. So John Marshall,¹ F.R.S., in his lecture in the Morton course before the Royal College of Surgeons, had

¹ British Medical Journal, November 18th, 1889, pp. 1141-1143.

the specimens under the microscope, and in speaking of the great mysteries of the subject he said, "Here is work for the microscopist," adding that "the most advances had been made through the study of structures. This," said he, "is the mode in which and through which knowledge has been increased in regard to these important diseases"; and still further emphasizing that "it affords the key to the most material advances in regard to the nature of disease."

Oliver Wendell Holmes,¹ a great teacher and for many years professor in Harvard University, as far back as 1861, when speaking in regard to the value of the microscope to the great science of medicine, said: "The microscope has made a new science of the intimate structures of the organs; has at the same time cleared up many uncertainties concerning the mechanism of the special functions. The minute structure of the viscera, the internal recesses of the animal system, were to the students of anatomy what the interior of Africa," etc.

To understand disease, and in many cases to intelligently treat it, we should understand the minute structure of an organ, and the pathological changes as the result of disease.

What are the Limits of Vaginal Hysterectomy?—I have heretofore held that colpo-hysterectomy should not be performed when the malignant disease has extended beyond the organ. I now believe surgeons quite right in removing the uterus for cancer, even though the disease may have extended to other structures; and if all the affected tissue, wherever found, can be removed, a cure may still be effected. In 1884 Dr. Paul F. Mundé² reported to the American Gynecological Society the removal of the uterus for cancer, which was afterward examined microscopically by Dr. C. Heitzmann, who stated: "Sections along the cut surface prove that the mucosa is in a condition of so-called small cellular infiltration, though cancer nests could not be detected"; adding, "should this view be correct, that this infiltration is the preliminary stage of cancer, no doubt recurrence will take place in your case within the next two years." The disease in this patient was again recognized within seven months. Dr. Mundé, in the above-mentioned paper, remarks: "A microscopical examination before opera-

¹ "Medical Essays," 1883, p. 231.

² Gynecological Transactions, 1884, p. 204

tion would have revealed the futility of endeavoring to operate in sound tissue, and would have contra-indicated the operation." Would not a microscopical examination rather have revealed the extent of the disease, and have indicated to the operator how far to have extended his incisions and how much of the tissue was to be removed ; and to remove all the infected tissue, even if it required the extirpation of the whole vagina and still further surrounding structures ? Prof. John Marshall,¹ of London, says : " Disregard the neatness of an operation, but sweep far away beyond what you really estimate as the seat of the disease." A great surgeon in New York said to me : " When an operation is once commenced make thorough work." Dr. J. E. Janvrin,² in his paper on " Vaginal Hysterectomy," says : " The operation should be performed, even if the disease has extended beyond the uterus, upon the vaginal mucous membrane or vaginal wall, or to the uterine adnexa." Richelet :³ " If the disease has extended to neighboring organs it can still be readily removed by piecemeal (*par morcellement.*)"

When it is impossible to remove all the diseased tissues, an operation may stay the progress of the disease, prolong the patient's life, and lessen her suffering. Erichsen,⁴ in his work on " Surgery," remarks : " The surgeon may sometimes operate in order to give the patient ease from present suffering, or perhaps with a view of prolonging life, even if he can have little expectation of effecting a cure. I am decidedly of the opinion that, if cancer cannot be actually cured by extirpation, life may be prolonged and health improved by the operation." E. W. Cushing⁵ says : " If the disease shows a tendency to spread toward the vagina there is great liability to recurrence, but that is no reason for not giving a woman her only chance. When it is surmised, but not known positively, that all the disease cannot be removed, the operation ought to be performed."

¹ British Medical Journal.

² Medical Record, July 9th, 1892.

³ Revue médico-chirurgicale des Mals des Femmes, December, 1891.

⁴ Eighth edition, vol. i., p. 1004.

⁵ " Vaginal Hysterectomy for Cancer." Read before the Medical Society of the State of New York.

Schauta considered it questionable whether we should not "give the patient the moral support afforded by an operation, even if we are quite sure that we cannot go beyond the disease." He also questions whether we are not able to prolong life somewhat by diminishing pain and suffering. Mundé¹ well says of his case above referred to: "The patient has, I think, been well repaid for the risk she ran; she had little or no suffering after the operation, and enjoyed nearly a year of freedom from hemorrhage, discharge, pain, and disagreeable local treatment"; adding, "were I to meet with a precisely similar case I should give her the same chance for relief." Martin² says: "By an operative treatment we undoubtedly best remedy the symptoms of these so-called inoperable cases, and at any rate by this means we uphold the failing courage of these unhappy ones better than by purely medical prescriptions." G. F. Shrady, in speaking of operations for malignant diseases in general surgery, says: "It is better that we run the chance of recurrence than that we take the other alternative of allowing the disease to go beyond us and kill the patient, for recurrence generally means slower growth and less pain. Allowing that the odds are against us, we should not be discouraged in giving our patients their only chance. Practically the operation comes to this. Otherwise our patients must voluntarily resign themselves to the inevitable." Shrady³ refers to Weir's report of a case in which the right breast was amputated by James R. Wood in 1856. In 1887 Post amputated the left breast. In 1873 Weir removed a recurrent growth from the right side, and again in 1877 and 1880. The patient finally died of the disease in 1881. This covers a period of twenty-six years.

Operating on hopeless cases may give poorer statistics, but the welfare and comfort of the sick are of more importance than statistics. Besides, a separate table may be made for the recognized hopeless cases, of which there would be fewer if their condition could be known at an earlier period. Yet, in the face of these facts, one author⁴ has assured us that "other methods of treatment, less dangerous than the extirpation of the uterus, are equally and even more useful."

¹ *Gynecological Transactions*, 1884, p. 200.

² *Annals of Gynecology*.

³ *Medical Record*, January 22d, 1887.

⁴ A. Reeves Jackson, *Transactions of American Gynecological Society*, 1883.

In so important a matter as this we should know; there should be no uncertain sound; we should be told what is right, and do only the best thing. The same author continues: "The alleviation of pain, the prevention and arrest of hemorrhage, the amelioration of offensive and acrid discharge, the maintenance of the general health, are all indications that may be met to some extent by comparatively harmless means."¹ Are not these symptoms of cancer, and to be met by removing the cause? How shall we alleviate pain? By narcotics? Besides doing the system great injury, are they not playwork in the face of so great an enemy? "Arrest hemorrhages." Are we certain that we can do this? How near may the cancer be to a large artery? I have seen, under the microscope, the cancer destroying the walls of a great blood vessel. How long will a styptic or a tampon prevent its walls from breaking down or stay the march of the deadly disease? "Maintain the general health." This is excellent and should be done by all possible means, but how long can the general health be maintained when cancer is preying upon the vitals?

The author says further: "Other methods than excision of the entire organ—as, for example, the sharp curette, knife, scissors, caustic, cautery, etc.—are capable of doing very much good, lessening suffering, and prolonging life." Certainly we want anything that will "do good, lessen suffering, or prolong life"; but are not these procedures attended with danger, and are they always useful? B. Jesse² said: "Caustic in this or any other form of disease is unreliable, and in some cases harmful." Meigs³ says "he has never seen caustics do much permanent good." A. H. Cordier⁴ says: "All escharotics, caustics, and tinkering should be condemned in treating these cases; they never cure, but often make complications." Joseph Taber Johnson⁵ says: "Caustics and minor operations do little good and only prolong the patient's

¹ This reminds one of what Graily Hewitt said in 1868, viz.: "There are three conditions to the relief of which our attention is directed, the pain, the hemorrhage, and the discharge, besides maintaining the functions of the body in a state of activity." But Graily Hewitt does not mention these as superseding surgical measures.

² British Gynecological Society, January 23d, 1890.

³ "Diseases of Women," 1868.

⁴ Annals of Gynecology and Surgery, January, 1892, p. 524.

⁵ AMERICAN JOURNAL OF OBSTETRICS, June, 1888, p. 635.

suffering." West and Duncan¹ say: "As a general rule, partial destruction has been followed by a more rapid development of the disease"—this was said at a time when caustics were trusted and tried faithfully—adding, "I have not been able to attribute to the actual cautery any delay in the progress of the evil." T. S. Lee said: "Caustic is our only resource, but I have never seen it do much permanent good." A. Martin² says: "I have now abandoned all caustic applications and use of the actual cautery, in any form whatever, even when the disease is yet entirely localized; I believe that a permanent result cannot be attained, even in the first stages, by any cauterization, however deep."

Wylie³ said: "I would never burn this tissue with caustic, with the galvanic cautery, or anything that would destroy the mucous membrane." Martin, of Chicago, says: "When the cautery is employed to its fullest extent it will still fall short of what is accomplished by total removal." H. C. Coe⁴ says: "The sharp curette or the galvano-cautery, with which we only work in the dark, and incur a certain risk of perforation in the uterine wall, and causing fatal peritonitis." He remarks elsewhere that "he believes, every time that adenoma uteri is attacked with the cautery, it simply returns in a more malignant form; that the use of the galvanic cautery may be less objectionable, but it is a blind procedure." He tells of one of his patients, on whom a palliative operation simply hastened her death; or of another case he says: "There is no doubt that a delay of a few months, with one or two more palliative operations, would have resulted fatally." He quotes Furst as saying that "palliation does more harm than good, simply aggravates the matter."

The electric cautery has certainly the power of destroying the tissue, as has the actual cautery, or as has arsenic, or as have many of the secret cancer preparations. Most of the latter are made up of arsenious acid, and their use is not only tedious but is necessarily accompanied by great distress and suffering. One woman, who I knew was by some secret preparation having a

¹ "Diseases of Women."

² "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition.

³ International Journal of Surgery, 1891, p. 190.

⁴ "The Limit of Vaginal Hysterectomy for Cancer of the Uterus," AMERICAN JOURNAL OF OBSTETRICS, June, 1890, p. 596.

cancer of the mammary gland removed, suffered more at each application than she would have done by the radical operation, and finally she succumbed before the work was accomplished.

When the great John Hunter on one occasion was called upon to decide the propriety of using one of these secret preparations, he put the following question to the maker of the preparation: "What do you intend to do with your medicine?" "To cure the patient." "Let me know what you mean by that? Do you mean to alter the diseased state of the parts, or do you mean by your medicine to remove the parts diseased?" "I mean to destroy them." "Well, then," said John Hunter, "that is nothing more than I, or any other surgeon, can do with less pain to the patient." Sir Spencer Wells¹ says: "We have no reason to fear a comparison between what we can do by fair and open means and what can really be done by any cancer curer or secret remedy." W. M. Polk² "held that if the cautery would destroy the cancerous disease, the knife would do the same"; adding, "the diseased tissue could be cut out if it could be burnt out." Cancer-cure preparations and cautery all work in the dark and are "blind procedures." John Marshall³ says: "A very sweeping use of the knife is better, I would say, than any cautery, any electricity, any form of temporizing with caustics, with pressure, with cold, or any such means. Electricity, we must remember, will only destroy what it reaches; it will ultimately be regarded as inferior to the knife. The knife, which sounds so cruel but which is not, is the most feasible method of removing these things."

John Byrne,⁴ in 1889, reported to the American Gynecological Society that he had up to that time treated three hundred and sixty-seven cases of cancer of the uterus by the galvano-cautery. He stated that "one hundred and fifty-one, or fifty-four per cent, were lost to observation before the expiration of one year." So the result in nearly one-half the cases is not known. Still we understand that three hundred and sixty-seven women had "cauterization" and more or less "excavation of the uterine cavity." His methods are: "Every part of the

¹ "The Morton Lecture on Cancer and Cancerous Diseases," November, 1889.

² AMERICAN JOURNAL OF OBSTETRICS, 1890, p. 634.

³ British Medical Journal, December, 1888.

⁴ Gynecological Transactions, 1889.

cavity should be gone over repeatedly," "the ragged borders of the excavation"; "no raw spots should be permitted to escape the cautery" "till all are charred, regardless of apparent limitations," till there is "an entire excavation and cauterization of the uterus"; then a "firmly rolled tampon should be inserted within the charred cavity." Says Dr. Byrne: "The full extent to which cauterization may be carried with impunity, and short of devitalizing peritoneal or other adjacent structures, I am not prepared to say."

But even though the greater part of the uterus is reduced to a "black char," there may yet be cancer nests. Why not burn a little more, "regardless of apparent limitations," or short of "devitalizing the peritoneal or other adjacent structures"—burn even "beyond the supposed danger line," destroying as much of the affected organ as can be safely spared—give "a thorough and fearless cauterization"? Why not at once make it "entire extirpation," and save the patient, though the method may be uncouth and the procedure somewhat unsurgical?

But it is marvellous to me how so many cases of cancer of the uterus could be diagnosed without any microscopical examination. In the whole article I do not read of any reference being made to a microscopical examination, or to his methods of diagnosis, except in one place he remarks: "In all cases of induration, destructive ulceration, or outgrowths of the cervix uteri of a malignant nature, or believed to be so," "Believed to be so." Can that be depended upon as a method of diagnosis? By the microscope we could tell positively. Dr. Byrne says of a case, April, 1879: "She was found to have a rapidly developing carcinoma." How could he know this certainty without a microscopical examination? On the preceding pages he speaks of "a well-marked cancer of the cervix which was removed by the galvano-cautery." If it was "well-marked cancer of the cervix," who could say that cancer had not extended far beyond? Schauta, of Prague, says: "Microscopically and clinically the diagnosis of the boundaries of cancer is impossible"; and he adds, "for this reason a radical operation is always indicated."

Dr. Byrne continues in regard to the preceding patient: "On referring to the hospital records it was found that this patient had been attacked with pelvic pains and hemorrhage five months after her third confinement." Would this necessarily indicate

cancer? Do not such symptoms frequently follow lacerated cervix and subinvolution, with possible misplacement of the uterus? And many women so affected may be restored to health by curettage and repairing the puerperal injuries, and so be enabled to have a half-dozen or more children. One cannot calculate how many little ones by this "charring" and cauterization have been prevented from coming into the world, how many possible little children have been destroyed, or how many prospective families have been made to vanish! Charles D. Meigs,¹ the clear diagnostician, an eminent professor in Philadelphia, said in 1859: "I have certainly met, in the course of fifty years, with several cases of diseased uteri which I had the greatest reason to suppose were cancerous, but which yielded to persevering treatment and ended in perfect recovery of health." Dr. Playfair,² in the London Obstetrical Society, said: "He would be a bold man who would venture positively to distinguish between certain changes in the cervix due to hyperplasia, and the early stages of carcinoma."

Dr. Byrne's statistics state: "The disease was limited to the portio vaginalis in fifty-nine cases." How could any one possibly discover or know this? Pozzi says: "No possible method of investigation can tell whether the cancer is limited to the cervix or not." Indeed, after all, have we any proof that all the "three hundred and sixty-seven patients" really had cancer? Dr. Byrne's statistics further state: "The entire cervix was affected in eighty-one." Could any human knowledge say that the disease had not extended beyond? Even if the whole cervix is removed and most of the fundus, "regardless of apparent limitations," cancer epithelia and cancer nests may still be left. Dr. Byrne speaks of amputation by the heated loop or knife at or above the vaginal insertion. T. A. Emmet³ says: "Let the operation be done with scissors, but never with the galvanic wire or the écraseur. I most strenuously object to these instruments." Dr. Byrne continues: "Amputation of the cervix, high or low, is worse than useless, unless followed by a thorough dry roasting of all the exposed surfaces." Dr. Thomas Keith⁴ says:

¹ "Diseases of Women," p. 333.

² Transactions of the Obstetrical Society of London, vol. xxvii., p. 42.

³ "Principles and Practice of Gynecology," p. 502.

⁴ British Medical Journal, January, 1891, p. 58.

"To remove as much of the uterus as possible without opening into the peritoneal cavity, and then to follow up the disease of the cavity by the free use of the cautery, seems to me to be monstrously bad surgery." Erichsen¹ asserts that "the wound left by the galvanic écraseur is more likely to slough, and secondary hemorrhage much more frequently occurs, than after the use of the simple écraseur." Mr. Jesset,² in speaking of supravaginal amputation of the cervix, said, December, 1892, "he preferred scissors or the knife to cautery." Dr. Herbert Spencer,³ on the same occasion, referring to Dr. Byrne's use of the galvanic cautery, said "he agreed with Mr. Jesset that removal by knife was preferable to removal by cautery or any other method."

In the above remarks I have not intended to criticise Dr. Byrne's work. I am a learner, earnestly seeking to know the most excellent way. Our aim is to save life. We are desirous to do the best for each and every case. The question is not the operation or the methods, but how we can certainly and most successfully relieve suffering, cure disease, and save from a certain and impending death. I would most assuredly adopt the procedures of Dr. Byrne if I could believe they were best.

Technique of Vaginal Hysterectomy.—This becomes a most interesting and important subject. Dr. Montgomery⁴ says: "The methods of operating are almost as many as the number of operators." Prof. P. Müller⁵ says: "The best method for vaginal removal of the whole uterus is still an open question. Two difficulties are met with: one, the long duration of the operation; the other, the uncertainty of controlling hemorrhage." Martin⁶ says: "It is to be classed as one of the most difficult operative proceedings in abdominal surgery." C. C. Lee said, at the New York Obstetrical Society, December 4th, 1883: "An operation which was at best exceedingly difficult to perform and extremely dangerous to life." The *Lancet* says, March 26th, 1887: "In uterine cancers the operator is always obliged to cut clear of diseased organs through structures which lie in the dark

¹ Erichsen's "Surgery," vol. i., p. 1009.

² Medical Record, January 7th, 1893, p. 29.

³ Ibid.

⁴ Annals of Gynecology, June, 1892.

⁵ Centralblatt für Gynäkologie, 1887, No. 12.

⁶ Fenger, American Journal of Medical Sciences.

or are at least difficult of access." Fenger¹ says: "As the operation itself is so difficult and the time occupied in its performance so great, any suggestion by which the duration of any of the steps of the operation may be shortened and the operation facilitated should be accepted with gratitude. Even under the most favorable circumstances it is a long and difficult operation." Dr. A. Reeves Jackson² says: "The operation by any method is essentially difficult, tedious, and dangerous, and no amount of skill in the performance can make it easy or safe." An editorial in the *British Medical Journal*³ says: "Vaginal hysterectomy, always a troublesome operation on account of the want of free space for operating, is rendered tenfold more difficult and dangerous when dissecting any of the pelvic cellular tissue is undertaken." Dr. E. C. Sterling⁴ says: "The operation is one of great difficulty." Reamy⁵ says: "Vaginal hysterectomy is a very dangerous operation."

Technique.—From the status of the operation, the procedure of others, and my own limited experience, I have been led to conclude that the operation could be very much simplified, made very much less difficult, and be very much less dangerous. The best and most natural mode of procedure has seemed to me to be the following: The patient having been prepared with equal care as for laparotomy and placed in the extreme lithotomy position, seize the cervix with strong forceps, bring it gradually down toward the rectum; note the extent of the bladder; if necessary, pass a sound, to be certain of its boundaries; make an incision on the anterior surface of the cervix near the boundary of the bladder, so as to be as far as possible from the cancerous cervix; separate the vaginal tissue anteriorly, and, when reaching the anterior cul-de-sac, open into the peritoneal cavity. The peritoneal membrane and the mucous membrane of the vagina may be caught together by a stitch; thereby the bladder is more securely protected, hemorrhage somewhat checked, and the stitch gives a convenient loop to hold out the membrane,

¹ Fenger, *American Journal of Medical Sciences*.

² *Transactions American Gynecological Society*, 1893.

³ May 21st, 1889, p. 1097.

⁴ First half *Transactions of American Association Obstetricians and Gynecologists*.

⁵ *Gynecological Transactions*, 1883, p. 232.

that the uterus may be more easily approached. The fundus is seized by strong volsella forceps and brought out anteriorly. The left broad ligament is now at your hand, and can be easily secured by pressure forceps; or, what is better, ligate the top of the broad ligament and secure the lower portion with forceps. Delivering the uterus a little more, the right ligament is at your hand; secure it in the same way. To separate the posterior vaginal attachments is the work of but a few minutes. Sew or clamp the posterior membrane, remove the sponges, and clean out the peritoneal cavity.

By this method, systematically carried out, the operation may be made extremely simple; the time may be reduced one-half; there will not be near the tax, danger, or shock to the patient; and in favorable cases and under favorable circumstances the work may be done in ten, twelve, fifteen, or thirty minutes. We know by other methods the best operators consume one, two, or more hours.

Drainage.—I have usually inserted pieces of gauze, one end extending into the peritoneal cavity, thus making perfect drainage; tampon the vagina with the same gauze, then wrap the whole part, the projecting forceps, etc., with large folds of absorbent cotton covered with gauze. Place the patient in bed with a pillow under her knees, which will keep all secure. Some say leave the dressings on four or five days; but evidently if these dressings are daily removed much substance which has drained from the peritoneal cavity is taken away. The dressings should be changed just as we frequently draw off a drainage tube in abdominal section. I have found great advantage in changing the dressings twice the first twenty-four hours, and after that once a day.

Assistants.—Fenger says, in his excellent article printed in THE AMERICAN JOURNAL OF OBSTETRICS, 1881: "Six reliable assistants are required in performing the extirpation." I saw Martin do the operation, he had four assistants; Leopold the same number. I have frequently thought the fewer the number of assistants in any operation the better. Many surgeons tell us the danger of infection is increased by every added one. Thomas A. Emmet once said that "by an accidental visitor

¹ Medical Record, February 7th.

touching one of his instruments he believes he lost his patient." On an important occasion Gill Wylie¹ lately said, referring especially to the operation of laparotomy: "My aim is to have just as few assistants touch the patients, or touch the instruments, or do anything, as possible. In my operations one person is permitted to do that." He added: "I think the more progressive men have fewer assistants and nurses than they ever did before, the object being to avoid the danger of sepsis." Wylie further remarks: "The aim is, and has been for years, to do away with as many assistants and as many persons around the patient as possible." He said on another occasion: "Ordinarily three assistants; for," said he, "of course the number of persons helping adds to the danger of infection." I saw Dr. Baldy do a laparotomy in Philadelphia, April, 1892, when, besides the etherizer, he had but one assistant—viz., the nurse, who stood opposite to him. He got along comfortably and successfully. He told me, January 19th, 1893, for laparotomy he usually wished only one assistant besides the etherizer and a nurse. I saw Granville Bantock do a number of operations with only one assistant besides the etherizer. I have seen G. P. Edebohl's perform a number of operations; besides the etherizer he usually had two assistants. I saw Joseph Price do a most difficult laparotomy, January 18th, 1893; besides the etherizer, who was one of his nurses, he had two other nurses to hand him the instruments and sponges as he wanted them.

With almost equal ease colpo-hysterectomy can be done with a few assistants. Dr. Bantock¹ performed vaginal hysterectomy, September, 1889, with only one assistant. The case was complicated by omental adhesion to the fundus, hydrosalpinx, and a disease of the left ovary, which latter was removed. The patient recovered without a bad symptom.

If the uterus is delivered anteriorly, no other opening being made, one can get along easily with two assistants. With my second and third I had two trained nurses to help; one administered the ether, the other handed me the needed instruments, gauze, sponges, etc. Dr. Price said on the above-mentioned occasion that "he trained his own nurses, and had rather have them

¹ British Medical Journal, November 29th, 1890, p. 1238.

than nurses from any training school." I am sure the two nurses we trained in the Woman's Hospital in Brooklyn did as good work, and in some respects better, than any nurses I have ever seen; and few physicians could administer the ether better, more carefully, or more successfully than either of these two nurses.

Shall the Vagino peritoneal Opening be closed?—Not closing it certainly allows of more perfect drainage. Some say there is nothing to drain. There is a vast amount. I have repeatedly found the gauze, cotton, and all completely saturated. A diseased uterus has been removed, the broad ligaments have been cut, in many cases parametric cellular tissue has been separated, and blood and débris have necessarily collected in the peritoneal cavity. There is necessity of the most thorough drainage. The success of this operation depends upon good drainage and security against hemorrhage. In three of my cases I removed a large portion of the broad ligament, considerable of the parametric cellular tissue, and a portion of the vagina adjoining the cervix. Probably this liberal removal of surrounding tissue is what saved the patients' life. A. H. Cordier,¹ Kansas City, says: "These cases always drain profusely."

Joseph Price² says: "It is surprising what a large amount of fluid escapes after vaginal hysterectomy; it will soak through bandages and wet huge gauze pads. I have had cushions made two feet long and eighteen inches wide and four inches thick, of corrosive jute and gauze. These are sometimes soaked through in twelve hours." E. W. Cushing³ says: "I am aware that attempts have been made to complete hysterectomy without drainage, tightly closing the wound. Martin began this way and lost a number of cases, and then resorted to drainage. I have seen Olshausen close the opening, but he told me that his results were not what he should like." Martin and others have used a T-shaped drainage tube. Some surgeons have suggested that pressure forceps will make sufficient drainage. I have found the most thorough and effective drainage secured by the use of a long slip of gauze entering the peritoneal cavity. With my fourth case I placed a drainage tube in addition to the piece

¹ "A Plea for the Early Surgical Treatment of Cancer of the Uterus." Read before the Obstetrical Society of Philadelphia, April, 1892.

² Annals of Gynecology, June, 1892, p. 557.

³ Annals of Gynecology, June, 1892, p. 555.

of gauze. When removed there was nothing in the drainage tube, but the gauze was fully saturated and had saturated the dressings beneath and around.

How often should the Wound be dressed?—Many have recommended that the dressings be not removed for five or six days. I have found the best results by removing dressings the same day, a few hours after the operation—and have always found them thoroughly saturated—and after the first day, once in twenty-four hours, till the wound was healed. The frequent change of dressings keeps the pulse and temperature down, prevents restlessness and danger of septicemia. E. C. Dudley¹ says: “In one of my own cases the gauze, removed at the end of forty-eight hours, was found extremely fetid, and after its removal a quantity of offensive secretions immediately came away which had been dammed back against the wound in consequence of the obstruction of the gauze.” These conditions were sufficient to have produced sepsis. Dr. James B. Hunter² said he “had a case which died on the thirteenth day of septicemia; the iodoform gauze was removed in forty-eight hours.” Greig Smith says: “Tampons in the genital passages have of themselves a strong tendency to become putrid.”

When shall the Bowels be moved?—Fenger says: “It is natural that we keep the bowels perfectly quiet until the peritoneal wound is healed.” In his case, reported in the *American Journal of the Medical Sciences*, the bowels were moved on the sixteenth day. I have found that the earlier and freer evacuation of the bowels the better for the patient, and, as after laparotomy, have usually tried to have a free evacuation of the bowels on the second day.

Shall Forceps or Ligatures be used?—In performing the above operation I voluntarily used forceps from the emergency of the case, and to save time. At first I clamped the whole broad ligament with forceps; but realizing that the projecting end of the forceps, by any restless or involuntary movement of the patient, might do injury, I thought best to ligature the top of the broad ligament and clamp the lower portion. I also saw that by using forceps, even with the greatest care, a fold may be left in the broad ligament, and possibly one of the numerous

¹ *Gynecological Transactions*, 1888, p. 177.

² *Ibid.*, p. 204.

blood vessels may be left insecure. In general I use forceps or ligatures, as circumstances make it most convenient. Both are needed. Both are equally commended. Forceps many consider not so reliable and not always to be depended upon; a clamp may give way; the patient's life, in the still hours of the night, may hang on the security of one little clasp. With my fourth and fifth cases the patients were extremely feeble, and I worked with the expeditious haste of a good many forceps. Eighteen forceps were used; they were removed twenty hours after; all did well. Some of them were made by Tiemann; most of them were Tait's small forceps. H. T. Byford¹ says: "I still use ligatures whenever I can do so satisfactorily." In 1888 I saw Péan deliver a uterus by vaginal hysterectomy for a small intermural fibroid. The uterus was almost as large as the fourth month of pregnancy. He used many forceps. When the woman was placed in bed she was not expected to live through the night.

Pozzi states: "If the use of ligatures be possible, it is preferable. Forceps pressure has caused laceration and injuries of the intestines. They narrow the field of operation and prevent proper asepsis by the necrosis of the tissues included."

Martin says: "I am now positive that ligatures can be applied as rapidly, if properly understood, and with greater security than the forceps." Krug² says: "Any operator with skill can tie as quickly as put on the clamp." E. W. Cushing³ says: "In any case I think the sutures rather than clamps are indicated." Another writer says: "I always use clamps instead of ligatures, not only because thereby the operation is shortened and hemorrhage more safely controlled, but because the weight of the handles of the clamp insures thorough drainage." In August, 1888, I received a letter from Dr. E. C. Dudley, of Chicago, saying: "I am preparing a paper to be presented at the meeting of the American Gynecological Association in September on 'Vaginal Hysterectomy with Hemostasis by Pressure Forceps.' I should like to include your cases in the table of statistics. Will you kindly make out a tabulated statement,

¹ Gynecological Transactions, 1888, p. 204.

² AMERICAN JOURNAL OF OBSTETRICS.

³ Annals of Gynecology, June, 1892, p. 550.

under the enclosed form, of your operations?" I sent him a table, of which the following is a portion :

STATISTICS.

Date.	Diagnosis.	To what extent, if at all, were ligatures or sutures used?	Remarks.
Mrs. C., June 4th, 1887.	60 Carcinoma.	Ligatures and sutures; no forceps left on.	Patient able to be up in two and a half weeks. Very much improved in health.
Mrs. E., September 1887.	49 Sarcoma....	A ligature at the top of each broad ligament; the rest of the ligament secured by forceps.	Forceps removed in forty-two hours. The patient was able to leave hospital in seventeen days, and has, up to this time, had excellent health.
Mrs. N.	37 Sarcoma....	Do.	Forceps removed in fifty-eight hours. Patient much improved by operation. No return of disease.
Mrs. H., October 1887.	49 Carcinoma..	Do.	Forceps removed in thirty-six hours. No return of disease.
Mrs. E., November 1887.	39 Carcinoma..	Do.	Eighteen forceps removed in forty-eight hours. Patient able to be out of bed on the seventeenth day.

Incisions.—Many of our best operators make a circular incision around the cervix, open into the peritoneal cavity anteriorly and posteriorly, and deliver through Douglas' cul-de-sac. The two openings must give more liability to sepsis, and even to malignant infection; for while delivering the fundus the cervix is apt to pass, through the second opening, into the peritoneal cavity. In an operation I once witnessed, at one step the fundus was exactly in the vaginal canal, obscuring the view and impeding the work, while the cancerous cervix was up in the peritoneal cavity. What was to prevent infection? E. C. Dudley,¹ of Chicago, said he "put absorbent cotton in the cervix, in case it did get into the peritoneal cavity." Is it not better to keep it out of the cavity, even though so securely pro-

¹ Gynecological Transactions, 1881, p. 204.

tected? Yet, delivering the fundus through Douglas' cul-de-sac, it may become a necessity; the uterus has to be turned, and cannot always be doubled upon itself. We see, again, that this method of delivery is unnatural. It is throwing the uterus as much as two-thirds of a circle from its normal position, which necessarily makes a great strain on the broad ligaments, the nerves, and a dangerous strain upon the bladder and its attachments, which continued strain may cause rupture in some vessel that may result in fatal hemorrhage. James B. Hunter¹ stated that he "had a number of times seen hemorrhage result from traction on the broad ligaments when there were no adhesions." Our little point will avoid many difficulties here, if, as Joseph Price² suggests, "not to perforate anteriorly until the finger is hooked over the broad ligament posteriorly and indicates the point at which you wish to perforate." Thomas Keith, in removing a uterus in 1881, brought down the fundus posteriorly. This bringing down the uterus through Douglas' cul-de-sac is not free from danger, and in many respects; besides, there are peculiar advantages in delivering anteriorly. Probably in no way can the broad ligaments be so easily approached; and the entire work of tying them, delivering the uterus, etc., can be done before the posterior attachments of the vagina are severed. Even if the uterus be displaced or retroverted, it is better first to put it in position, as I did in my third case, and proceed by anterior delivery. Though in this case the uterus was retroverted, prolapsed, and complicated by an intermural fibroid, yet I found it easier to deliver through the anterior incision. The posterior delivery, I repeat, is more difficult, accompanied by greater possible danger and by greater shock.

I have become more and more convinced that the method I pursued in the last four cases is the one that can be done with the greatest ease and celerity, and is attended with the least shock and danger. Delivering posteriorly, we, as the *British Medical Journal*³ asserts, "cut through structures that lie in the dark, or at least are difficult of access." If the uterus is delivered anteriorly the fundus can be readily brought forward, and securing the broad ligaments becomes an easy

¹ AMERICAN JOURNAL OF OBSTETRICS, May, 1887.

² Annals of Gynecology, p. 556.

³ Editorial, March 26th, 1887, p. 680.

procedure. One can see all that is to be done, there is room to work, no structures are on a dangerous strain, and there is no necessity of making numerous stitches. Opening anteriorly also enables us to dispense with the many speculums, retractors, and other ponderous instruments that are placed in the vagina, which really obscure the view and impede the operation.

Let us for a moment examine the procedure of one of our most eminent operators—Martin, of Berlin. He says: "My method of vaginal extirpation is as follows: The vault of the vagina is exposed by means of a speculum and side pieces. The cervix is seized with bullet forceps in its posterior border and drawn forward as far as possible toward the symphysis pubis. Then I make an incision through the entire extent of the insertion of the vagina into the uterus, in order to advance into Douglas' cul-de-sac as quickly as possible. If the mass of tissue to be cut through is very thick, then this penetration will be very difficult and troublesome. I enlarge the opening into Douglas' cul-de-sac, then, with a small needle which is very much curved, I sew around the entire border of the cut in the vagina, usually with five stitches. I force my way deeper and deeper along the posterior wall. Next I sew up the stump of the broad ligament, for which purpose I use large needles armed with a double thread, thrusting them from this vaginal wall toward the place in the side of Douglas' cul-de-sac, while my forefinger within presses toward me."

All this while the uterus is being held in this forced position, with the great strain upon many structures. Martin continues: "I go deeper and deeper along the posterior wall." Even for the most dexterous this is extremely difficult.

Martin further says: "I cut around the anterior periphery while drawing the uterus forcibly backward and putting the anterior vaginal wall on the stretch." Many a bladder will be wounded or opened and many an operator come to grief. He says: "Drawing the uterus forcibly backward, I push back along the cervix with my finger nail that portion of the bladder that is united to the cervix, as far as I can discern the attachment." This separating the bladder from the cervix is one of the nice points of the operation, and, if done with the finger nail, the bladder may give way before some of the surrounding tissues. Dr. J. B. Etheridge, of Chicago, says: "It is the easi-

est thing in the world to open into the bladder." Martin continues: "Not infrequently it is necessary to use a knife in order to separate the firmest bands of the uterus. . . . We must sew as exactly as possible the separated surface to the vaginal wall. Five stitches generally suffice."

Now, both anteriorly and posteriorly, the vagina is separated from the cervix. Thus there are two openings into the peritoneal cavity. He says: "I grasp once more the posterior portion of the uterus. I seize its posterior lip with Muzeux forceps, in order to draw it firmly forward, and by obtaining successively fresh grips on the forceps I guide the posterior wall of the cervix and fundus into the opening, delivering posteriorly. If the uterus is large this stage of the operation may be made exceedingly tedious. An advantage is often secured by pushing the cervix up behind the symphysis pubis. Sometimes an instrument is placed into the uterine cavity to push the fundus down." But he said: "I like to avoid using this instrument, because the posterior wall of the uterus is generally bored through by it and the contents of the uterus escape on the surface of the wound. As soon as the fundus of the uterus has presented itself it passes through the opening, though in some cases this is attended with many difficulties, which must be overcome by using the knife or scissors."

Martin says: "The further detachment of the uterus in this inverted condition is very difficult. I isolate the insertion of the broad ligaments to the organs thus turned out; I tie in the nerves and blood vessels." Is it any wonder if some fine artery in the great plexus of blood vessels may be ruptured by this excessive strain, and produce a hemorrhage or oozing which it is impossible to detect or correct, and that even this master in gynecological surgery might not be able to prevent?

The second patient on whom he operated in the Murdock Free Hospital in Boston may have had this accident. The report, as given in the *Annals of Gynecology*, says: "No notable difficulty occurred during the operation, except much hemorrhage from stump of broad ligament after removal of uterus. Dr. Martin put in several deep stitches or ligatures, and the hemorrhage seemed to be arrested. Patient came out of ether well, but sank and died during the night at 4:30 A.M. Autopsy showed quarts of fresh blood in the cavity. There had been

no discharge of blood by the drainage tube, and no particular symptoms by which hemorrhage could be differentiated from the shock of operation."

Dr. Martin continues: "Into Douglas' cul-de-sac there is placed a Sims speculum or a side holder, and this protects the fundus from catching on the posterior portion of the wound. And if the uterus is large and thick this stage of the operation may be made exceedingly tedious, which must be overcome by using the knife or scissors. The further detachment of the uterus in this inverted condition is very difficult."

The report of the case operated on in Dr. H. O. Marcy's private hospital says: "Although the vagina was roomy and the large uterus was not adherent, yet Dr. Martin found great difficulty in turning the fundus over into the vagina."

Delivering the fundus anteriorly there is no special difficulty. It almost slides out on the inclined plane. No speculum or side holders have to be introduced to keep it from catching on the border of the wound.

Martin continues: "I isolate the insertion of the broad ligament to the organ thus turned over. I tie each side in one, two, or three segments, then cut away the uterus. When the cervix has been freed from behind and both sides, I enter on the detachment of the bladder." No wonder he says: "Even after having done the operation two hundred times I never feel quite free from embarrassment at this point. . . . I ascertain the condition of the bladder by a catheter, and then conclude the operation."

This would seem to be the first thing to consider. The object should be, not to consider an injury, but to prevent it. Even this great operator has cut into the bladder. Of one instance he says: "The connection between the uterus and bladder was quite extensive, but the opening in the bladder was reduced even during the operation by the natural contraction of the parts." But, said he, "as the opening had been difficult I did not wish to prolong it by the suture of the bladder. The patient recovered and left the house eight weeks after the operation with a small opening in the cicatrix of the fundus." In the other case "he united the edges of the bladder and the border of the peritoneum to the vaginal. The patient left the hospital in three weeks, complaining still of some discomfiture in the

bladder, which could retain only a small amount of urine. . . . The duration of the operation varies, according to the difficulties, from twenty minutes to two hours."¹

E. W. Cushing² says of Martin's operation: "An amount of suturing which to any one less expert would involve a terribly long operation, as, in fact, it does." Wathen, of Louisville, said of Martin and Schröder, "their technique was faulty."

Dr. G. M. Tuttle³ was present at the first operation performed by the surgeon who is credited with the largest number of hysterectomies on record, and he was sure that at that time he lacked a great deal in the manner.

Let us for a moment study the methods of other distinguished operators who have also had great success. Schröder says: "The uterus is pulled down as far as possible, a circular incision is then made in healthy tissue around the cervix, and the vaginal mucous membrane pushed back and upward. Douglas' pouch is opened by a transverse incision, and the uterus is then turned over so that its fundus appears at the opening. I generally first produce retroflexion and pull the body of the uterus through the incision in Douglas' pouch, separate the peritoneum of the vesico-uterine pouch, leaving the uterus, attached now only to the broad ligaments. These are ligated either with a single ligature or in different portions. The wound in the peritoneum is now cleared and the stump of the broad ligaments sewed in." Emmet⁴ says: "By combined manipulation the uterus is now retroverted and an attempt is made to bring the fundus through the wound in the peritoneal vaginal vault. This is not an easy matter, and the difficulty increases with the size of the uterus."

When I was in Dresden in the fall of 1886 I saw Leopold deliver a cancerous uterus posteriorly; and of all his operations that I had the pleasure of witnessing, this was the most beautiful and the most gracefully done. I sat at his left and had an opportunity of seeing every step in the procedure. He delivered posteriorly, as some of our best and most successful surgeons have

¹ *Annals of Gynecology.*

² *Obstetrical Society, Philadelphia; Annals of Gynecology.*

³ *New York Obstetrical Society.*

⁴ "*Principles and Practice of Gynecology," p. 530.*

done. During the same year I had an opportunity of seeing Martin, of Berlin, perform several vaginal hysterectomies.

In 1881 Dr. C. Fenger, of Chicago, performed a successful operation, when for the best operators there was twenty-five per cent of deaths. Yet, says he, "I did not hesitate, after careful investigation, to resort to the operation. A circular incision was made through the vaginal mucous membrane, so that the peritoneal cavity was opened posteriorly. The body of the uterus was anteverted and drawn out through the anterior cul-de-sac." This came near being an ideal operation. The patient did well. Anderson, the first one who did this operation in this country, made an incision through the vaginal wall around the entire cervix, opened the peritoneum both anteriorly and posteriorly.

Almost uniformly operators open the peritoneum both anteriorly and posteriorly, retrovert or retroflex the uterus, and deliver through Douglas' cul-de-sac.

Duncan, who reported the first cases of vaginal hysterectomy to the London Obstetrical Society, cut the vaginal mucous membrane around the cervix, opened the peritoneum anteriorly, then Douglas' cul-de-sac, and retroverted the uterus.

Purposes for which Colpo-hysterectomy may be performed.—

1. For malignant diseases.
2. For small intermural myoma.
3. For senile atrophy.
4. For otherwise incurable prolapse.
5. For intractable inversion of the uterus.
6. For incurable endometritis.
7. For endometritis hemorrhagica.
8. For uterine retroflexion.

And finally, in January, 1886, Martin performed the operation for a case of retained placenta, when the posterior wall of the uterus had become injured. The operation has also been recommended for ulceration and inflammation of uterine appendages. Péan and Ségond advise it in the treatment of peri-uterine suppuration. Frank, of Cologne, has performed it for uterine diseases that have refused to yield to all other means of treatment. He has done it when he was unable in other ways to arrest quickly a uterine hemorrhage seriously jeopardizing life. He did it in two cases when the removal of the ovary had failed to relieve hysterical troubles, where the patients continued to show the most violent hystero-epileptic attacks. Both were completely cured by the performance of hysterectomy.

Richelot said: "One could readily foresee the time when the

field of this operation would be greatly extended." It may help many conditions that seem incurable and that are otherwise beyond remedy; yet the principal scope and object of this operation is to combat malignant disease. But even for this can we not find something better, something that is not attended with danger and more fully meets all the indications? Cannot something be found that will cure the disease, give no shock, nor allow of secondary formations? So fearful is this disease in its nature, so destructive in its effects, and so surely fatal in its termination, should we not more seriously turn our attention to studying it, its etiology, how to prevent, cure, or stay its progress?

Hewitt¹ has said: "Cancer of the generative organs is undoubtedly the most formidable affection to which woman is liable." Duncan adds: "Pain often exceeding in intensity all that can be imagined, and all tending surely and swiftly to a fatal issue." Meigs repeated in 1859: "Little can be done till the woman sinks into the grave, her only and her last, best refuge." Two veteran gynecologists of England say: "I know of no means by which the progress of cancer can be arrested"; and when all the profession re-echo the same, is it not time for us to look into this most frightful of maladies, study it well, and endeavor to save the thousands that are annually destroyed by it! We are still more urged to this by recognizing the fact that the disease is steadily on the increase. Sir Spencer Wells, December 1st, 1886, said: "While sanitary science is shortening the duration and lowering the fatality of some diseases, cancerous diseases are more prevalent and more fatal; there is a gradual increase in the mortality, greater than the proportional increase of population." The number of deaths from cancer in England increased from 7,245 in 1861 to 17,113 in 1887. In this country from 1877 to 1887 there were 156,924 deaths from cancer. Dr. Fordyce Barker says: "The mortality from cancer in the city of New York has risen from 400 to the million in 1875 to 530 to the million in 1885."

Every year sounds the same notes of rapid increase. Is it not our duty as physicians and surgeons to continue still more sedulously our studies to find not only the best methods of

¹ British Medical Journal, December 1st, 1888.

curing, but, if possible, the prevention of the disease? Sir James Paget, in his lecture on cancer and cancerous diseases, November 11th, 1887, says: "We are bound to seek everywhere and in all ways to find a method for either the prevention or cure of cancer and cancerous diseases."¹ John Marshall said, in 1889, in the Morton lecture on cancer and cancerous diseases, delivered before the Royal College of Surgeons: "We know not the cause. But does that prevent us from endeavoring to ascertain the cause? Are we not compelled, as members of a scientific profession, to dive into its mystery? It is likely that Providence has, as it were, struck such a fatal blow at the human construction that there is no remedy for our ignorance, that there is no knowledge but what we may possess. We are responsible for carrying on this investigation and inquiring into this disease until we know something more about it." "To this," say West and Duncan, "our common humanity prompts, our obligations as medical men compel us." All feel the necessity of studying this most mysterious of diseases; but it is only by microscopical investigation that we can settle these mysteries, or get "light, more light still" on these peculiar, painful, and penetrating growths. J. Sims Woodhead, Director of Research Laboratory of the Royal College of Physicians and Surgeons, says: "We owe to histology and statistics almost all knowledge concerning cancer that has been hitherto acquired."

In some of my late microscopical researches in the morbid anatomy of the ovary, earnestly trying to find out why diseases of these organs should destroy the health, comfort, and active usefulness of the individual, I came, in December, 1888, to an ovary which was a marked specimen of cancerous infiltration. I studied it from day to day, and returned repeatedly to the investigation of so interesting a subject. In June, 1892, I saw clearly that the inflammatory corpuscles of the "small cellular infiltration" around the growth were changing to cancer epithelia and forming cancer nests.² This fact is of the greatest practical importance, as I have indicated in another part of this paper, and heeding it may save the lives of many that otherwise would be lost. As early as 1883 Dr. Charles Heitzmann, with his clear penetration, suggested that the small cellular infiltration

¹ British Medical Journal, 1887.

² Medical Record, March 11th, 1893.

around a cancerous tumor was "the first stage of cancer." But here, in this specimen, it was positively proved that this cellular infiltration was already cancer and formed a part of the malignant growth.

In studying the same specimen, I also demonstrated that cancer epithelia are conveyed to various parts of the system and to distant organs by the lymphatic vessels; and that these vessels form, at varying intervals, new cancerous foci and new centres of infection.

That cancer cells should be carried by the lymphatics has long been supposed to be the case, because the lymphatic ganglia in the neighborhood of the growth were the first to become affected; but it had never before been seen. This, so far as I know, is the first time the lymphatic vessels have been recognized, distended with their burden of cancer epithelia and carrying the disease germs. The thrombus in the lymph vessels becomes filled with new living matter, the epithelia grow and increase, and the nuclei divide and subdivide. I have watched this in repeated instances. J. Marshall, of London, says: "Shall we not hope to unfold the mystery of mysteries which lies in the nucleus of a cancer cell?"

Under a power of twelve hundred diameters I have seen some of the marvellous changes taking place in the cancer nuclei. They become coarsely granular, undergo division into smaller pieces of protoplasm, or, as some say, there is a "wild evolution of cells." Thus the nuclei break up into a number of irregular lumps of living matter, each one becoming an active centre of infection. They invade the lining endothelia of the lymph vessels. These endothelia become enlarged, filled with granular matter, and also undergo karyokinetic division. Changes take place in the wall of the lymph vessels, they melt away, and the cancer passes into new fields, taking possession of new and larger territories, still growing and spreading. Under the microscope the tissues around the lymph vessel were found filled with cancer epithelia; even the fibrous connective tissue surrounding the thrombus was in a state of active proliferation.

What is there in this nucleus that gives it such power to increase and multiply, and to destroy the natural structure of all tissues, and to sap the life of the strongest and most robust persons?

One author speaks of "cancer juices," and intimates that cancerous growths may be "anarchical"—that is, without the controlling nerve fibres. These growths are not anarchical, they are still under vital control, and no cancer juice or chemical change can elaborate these formations. They are formed by the mysterious life principle, and under some morbid element. Sir Samuel Paget says: "I believe that micro-parasites, or substances produced by them, will some day be found in essential relation with cancer and cancerous diseases." Many have supposed they have found the micro-organism of cancer, but the discovery still eludes us; the mystery of mysteries still lies locked in a cancer nucleus, yet to be discovered in the study of structure and of life changes.

163 DE KALB AVENUE.

Dear Friends—
I am sending you a copy of a paper I wrote for the American Journal of Obstetrics and Gynecology, which I hope you will like. It is a short article, and I hope it will be of interest to you.
Yours very truly,
John Jones, M.D.,
163 De Kalb Avenue,
Brooklyn, N.Y.

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